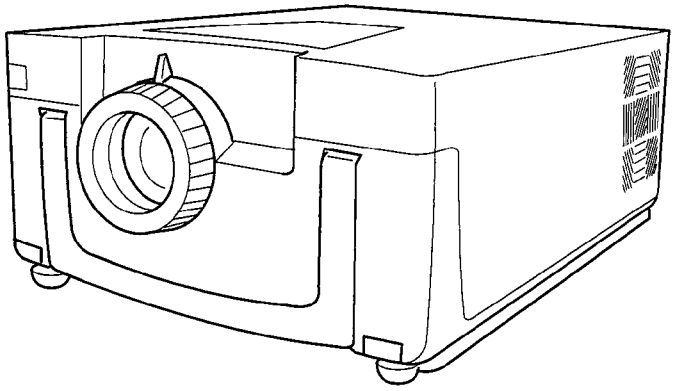
HITACHI

SERVICE MANUAL

YK | No. 0488E

CP-S830W
CP-S830E



Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi liquid crystal projector. Be sure to read cautionary items described in the manual to maintain safety before servicing.

Service Warning

1. When replace the lamp, to avoid burns to your fingers. The lamp becomes too hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit (main), when turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. The LCD module ass'y is likely to be damaged. If replacing to the LCD module ass'y, do not hold the FPC of the LCD module ass'y.

Contents

1. Features ····2
2. Specifications ····2
3. Names of each part ····3
4. Adjustment ····9
5. Troubleshooting ····12
6. Service points ····19
7. Block diagram ····22
8. Wiring diagram ····23
9. Basic circuit diagram ····24
10. Connector connection diagram ····37
11. Disassembly diagram ····39
12. Replacement parts list ····41

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Liquid Crystal Projector

August 1998 Image & Information Media Systems Division Yokohama Operation

1. Features

- 0.9" polysilicon liquid crystal panel
- 150W UHB lamp
- Video input compatible with NTSC/PAL/SECAM video signals
- RGB input compatible with IBM® PCs, Macintosh® and NEC® PC98 computer signals
- 2 VIDEO IN systems, 2 RGB IN systems, and 1 RGB OUT system
- RS232C communication
- Mouse emulation

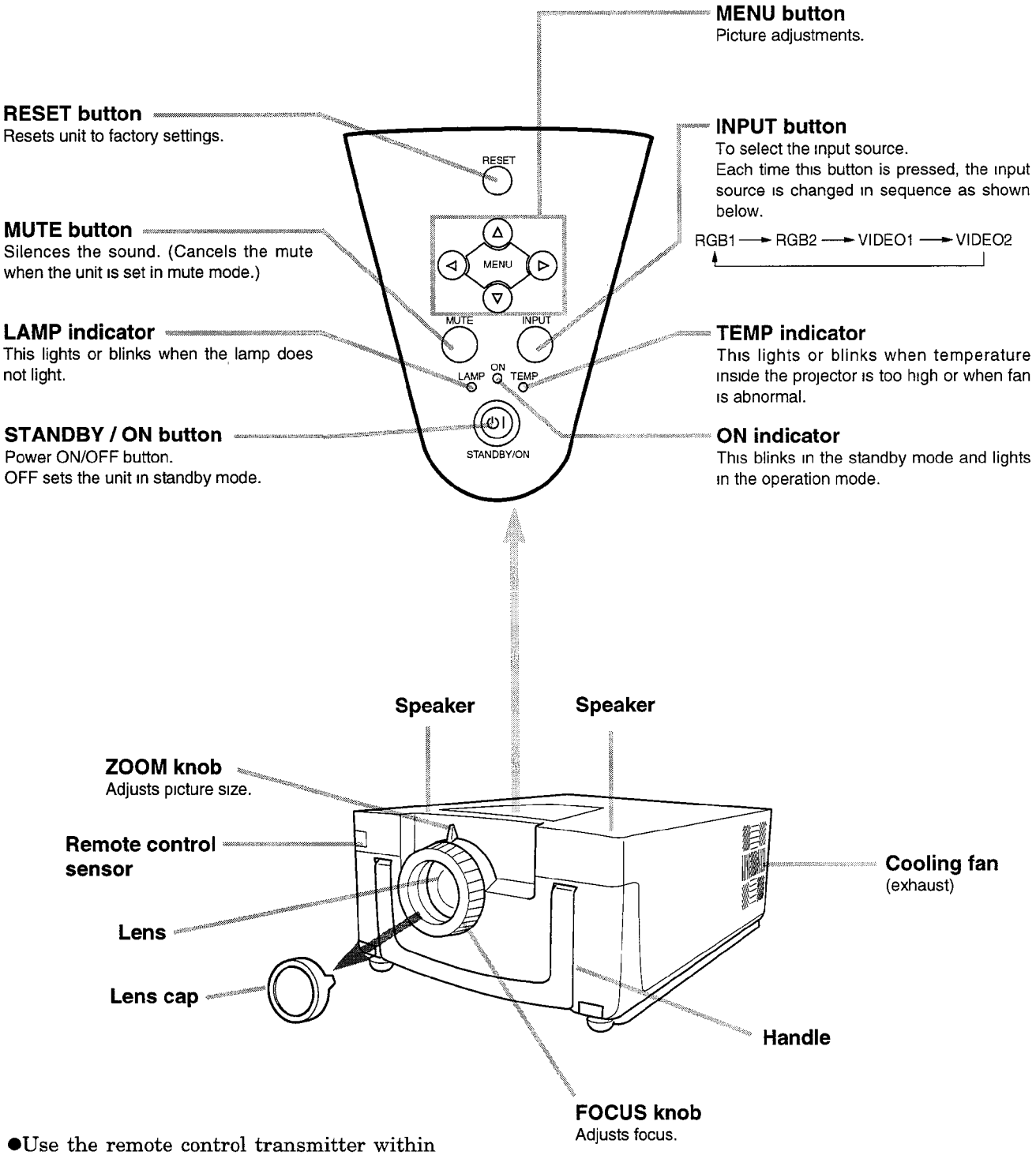
2. Specifications

Liquid crystal panel	Drive system	TFT active matrix
	Panel size	0.9inches
	Number of pixels	800 (H) x 600 (V)
Lamp		UHB lamp 150W
Video input	System	NTSC , 4.43NTSC , PAL , M-PAL , or SECAM
	Level	Composite 1.0Vp-p (75Ω termination) Y/C Y : 1.0Vp-p (75Ω termination) C : 0.286Vp-p (NTSC burst signal, 75Ω termination) 0.3Vp-p (PAL/SECAM burst signal, 75Ω termination)
RGB input / output	Video signal	Analog RGB input 0.7Vp-p (75Ω termination)
	Sync signal	H/V separate (H/V composite: only 15kHz RGB) TTL level
Audio	Input	200mVrms, 20kΩ or less
	Output	0~200mVrms, 1kΩ
Speaker output		1W + 1W (stereo)
Power supply		AC100~120V/5A,AC220~240V/2.2A (50/60Hz)
Power consumption		230W
Dimensions		335 (W) x 125 (H) x 239 (D) mm
Weight		5.2kg
Temperature range		Operation : 0~35°C Storage : -20~60°C
Accessories		Remote control ·····1 Batteries LR6 ·····2 Power cord ·····3 Stereo mini cable ·····1 MAC adapter ·····1 RGB signal cable ·····1 Video/Audio cable ·····1 Mouse cable ·····3 S-Video cable ·····1

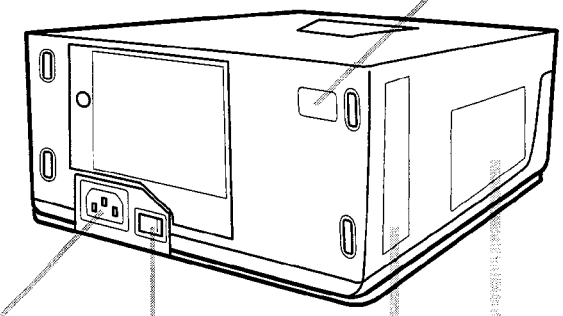
3. Names of each part

●Main unit

●Operation section



●Use the remote control transmitter within the range of about 16 feet from the remote control sensor and within 30° to both the left and right.



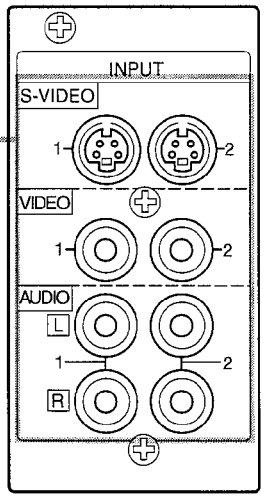
Remote control sensor

AC IN socket
Connect the provided power cord.

MAIN POWER switch
Main power ON/OFF switch.
○ : OFF
| : ON

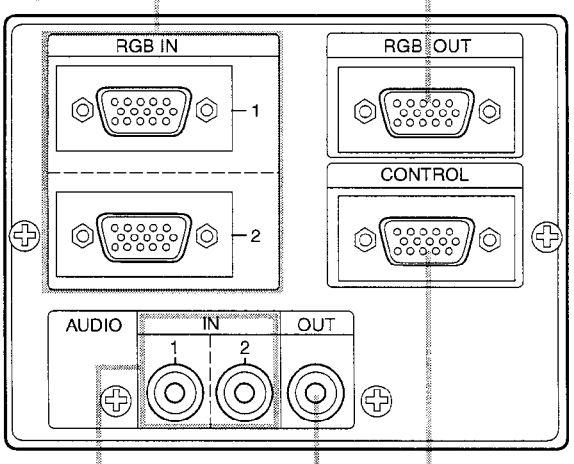
RGB input terminal
D-sub 15pin shrink terminal (1/2)

RGB output terminal
D-sub 15pin shrink terminal
RGB output can be displayed even in the standby mode.



VIDEO input terminal
(on video-equipped models only)

S-VIDEO input terminal
Mini DIN 4pin connector (1/2)
VIDEO input terminal
RCA Jack (1/2)
AUDIO L/R input terminal
RCA Jack (1/2)

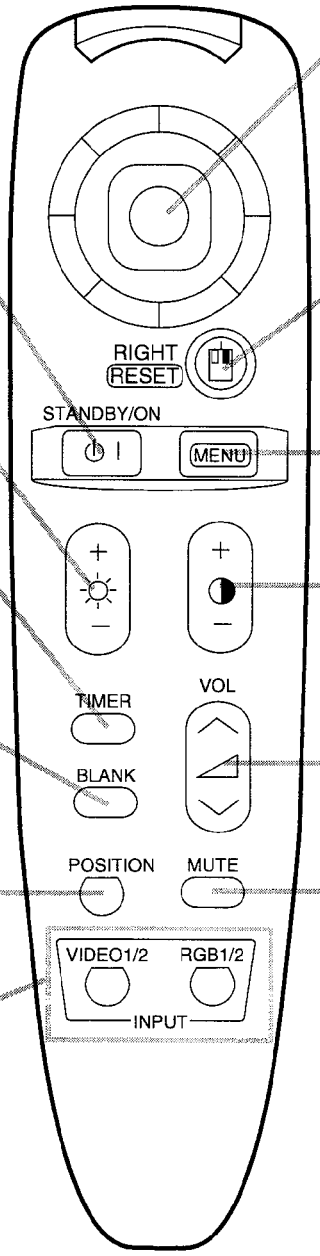


CONTROL terminal
D-sub 15pin shrink terminal

AUDIO output terminal (RGB/VIDEO)
Stereo mini jack

AUDIO input terminal
Stereo mini jack (1/2)

● Remote control transmitter



STANDBY / ON button
Power ON/OFF button.
OFF sets the unit in standby mode.

BRIGHT button
Adjusts bright.

TIMER ON / OFF button
Displays the setting time by count down.

BLANK ON / OFF button
Blanks Picture:, Pressing the button again and keeping it pressed will reveal picture from top to bottom.

POSITION button
Moves the picture by MENU STICK SWITCH when pressing the POSITION button.

INPUT SELECT button
Selects the input source.

MENU STICK SWITCH
When menu screen is being displayed, an adjustment item can be selected and adjustment can also be done using this switch.
When menu screen is not displayed, this switch can move mouse cursor, and also move picture vertically or horizontally with the POSITION button pressed.

RESET / RIGHT button
When displays the on-screen menus, resets the menu item to factory settings.
When removes the on-screen menus, works as right quick button.

MENU ON / OFF button
Displays or removes the on-screen menus.

CONTRAST button
Adjusts contrast.

VOLUME button
Adjusts volume. The sound is loud or low while pressing the "∧" or "∨" button.

MUTE button
Silences the sound. (cancels the mute when the unit is set in mute mode.)

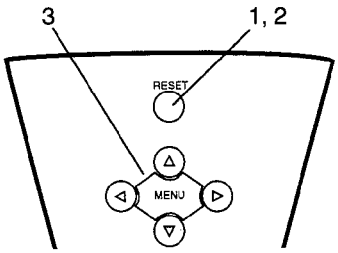
Function for service

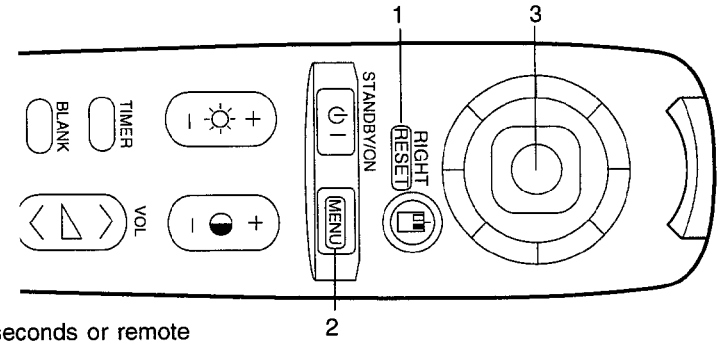
Function	Operation
Displayed the operating time of the lamp	Press the RESET button of the projector or the TIMER button of the remote control, for 3 seconds.
Reset the operating time of the lamp	Press the RESET button of the projector or the remote control MENU, for 3 seconds. (During be displayed the operating time of the lamp.)
Displayed the operating time of the projector	Press the MUTE button of the projector or the remote control, for 3 seconds. (During be displayed the operating time of the lamp.)

When replacing the lamp, Reset the operating time of lamp.

Reset the lamp timer :

Please carry out the following operation within 10 minutes from power on, if you replaced the lamp after 2,000 hours.





1) Press the RESET button on projector for 3 seconds or remote control TIMER button for 3 seconds and display the total lamp used time.
2) Press the RESET button on projector or remote control MENU ON button during displaying the lamp used time.
3) Select the "0" on the screen using the MENU (◀) button or MENU STICK SWITCH.

LAMP 1700 hr

LAMP 1700 □→0 ■CANCEL

Message table

On-screen display

The following messages are displayed on the screen.

"CHANGE THE LAMP" "AFTER REPLACING LAMP, RESET THE LAMP TIMER"	Lamp has 1,700 hours on it and may need to be changed.
"CHANGE THE LAMP" "AFTER REPLACING LAMP, RESET THE LAMP TIMER" "THE POWER WILL TURN OFF AFTER 20 Hr."	Lamp has 1,979 hours on it. See P.4 "Reset the lamp timer"
Blinking of "CHANGE THE LAMP" "AFTER REPLACING LAMP, RESET THE LAMP TIMER" "THE POWER WILL TURN OFF AFTER 0 Hr."	When the lamp has 2,000 hours or more on it, the message will blink, and the power will turns off after 10 minutes.
"NO INPUT IS DETECTED"	Signal is not input.
"SYNC IS OUT OF RANGE"	The horizontal frequency of the input signal exceeds the range of the projector, it cannot be displayed.

Indicator display

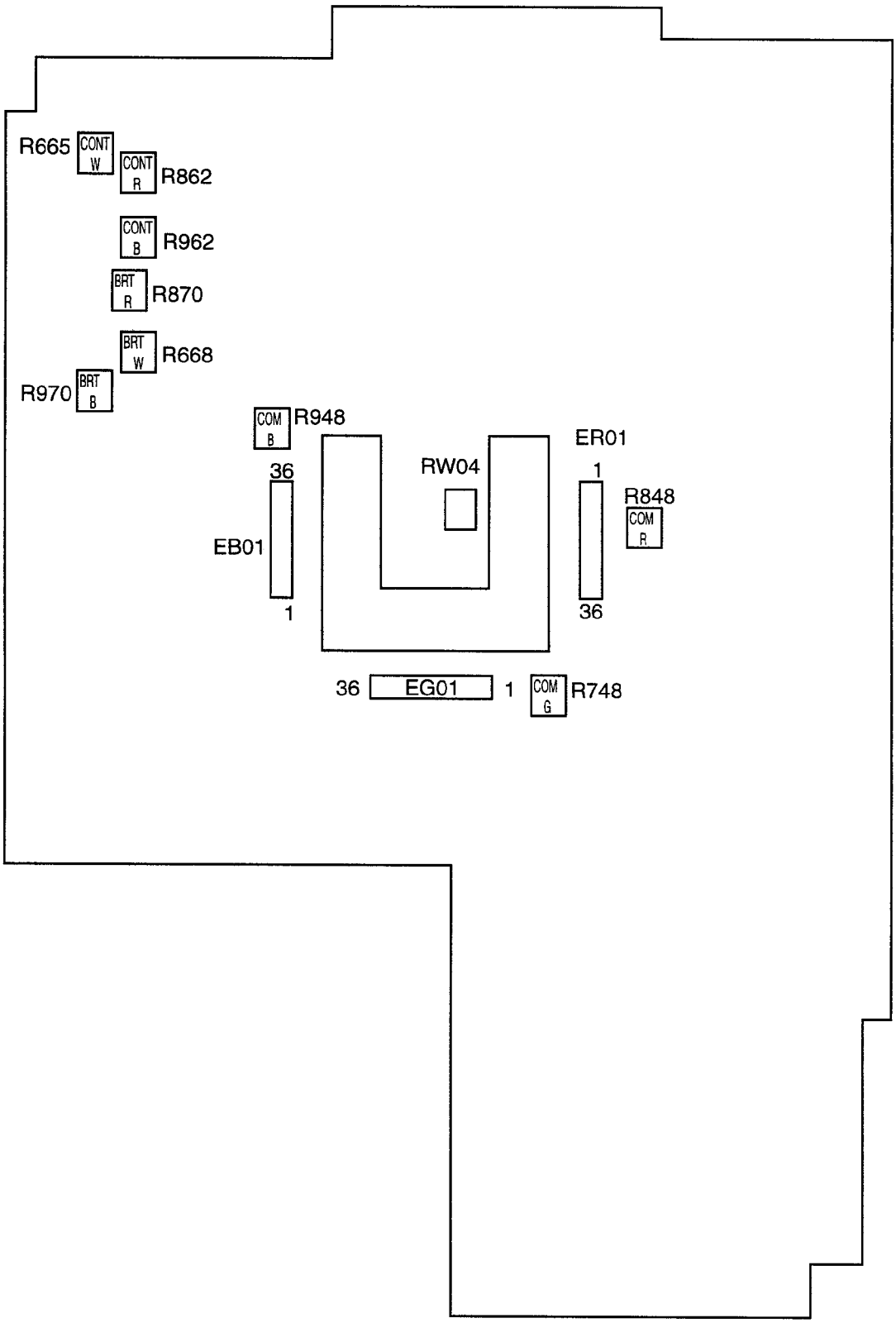
The ON indicator, LAMP indicator and TEMP indicator will light or blink in the following cases.

ON indicator	LAMP indicator	TEMP indicator	Meaning	Remedy
Lights orange	Goes off	Goes off	Standby mode	———
Blinks green	Goes off	Goes off	During warming up	———
Lights green	Goes off	Goes off	During operation	———
Blinks orange	Goes off	Goes off	During cooling down	———
Lights red	Lights red	Goes off	Lamp cannot light	Cool projector by power off for 60 minutes. If the indicator is still lit, lamp may be defective. Replace.
Lights red	Blinks red	Goes off	Lamp is not inserted	Securely insert the lamp.
Lights red	Goes off	Lights red	Temperature inside too hight	Correctly reinstall so as not to block ventilation holes.
Lights red	Goes off	Blinks red	Cooling fan accidented	Replace fan.
Blinks red	Blinks red	Goes off	Accumulated lamp operation time has exceeded 2,000 hours	Replace lamp and reset the accumulated lamp operation time.

When inside temperature becomes high because ventilation holes are blocked, normally, TEMP indicator will light red. However, to protect the projector, the lamp may be turned off and at this time LAMP indecator may light red.

4. Adjustment

4 - 1 Position to be adjusted



4 - 2 White balance adjustment

Preparations for adjustment

1. Setting of condition

①Apply heat-running for 10 minutes or more before adjustment.

②Project 40 inches size image with zoom set to the widest.

③Press the RESET button of the remote control transmitter to set picture adjustment to NORMAL.

2. Adjustment common voltage (flicker) .

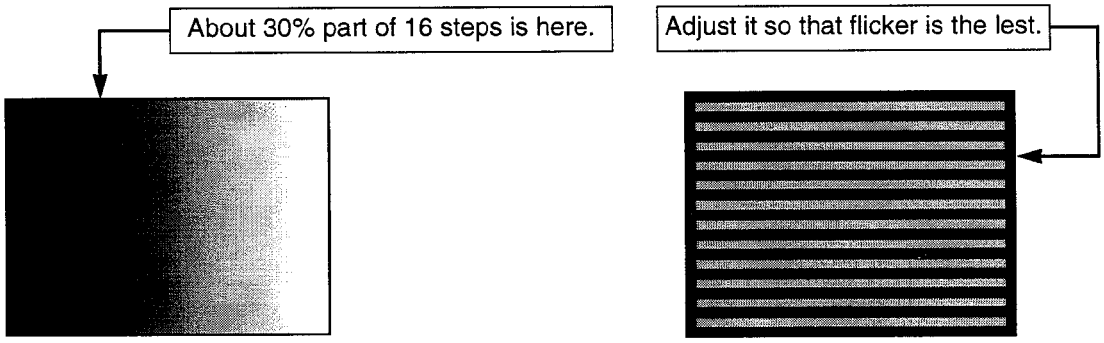
Refer to the attached drawing.

①Input 16 steps monochrome green with a timing signal of SVGA VESA(60).
Adjust R748 so that brightness at about 30% part of 16 steps is the darkest.

②Input 16 steps monochrome red with a timing signal of SVGA VESA(60).
Adjust R848 so that brightness at about 30% part of 16 steps is the darkest.

③Input 16 steps monochrome blue with a timing signal of SVGA VESA(60).
Adjust R948 so that brightness at about 30% part of 16 steps is the darkest.

④Input horizontal green line (gray/black) signal with a timing signal of SVGA VESA(60).
Adjust R748 so that flicker is the lest.



Adjustment Procedure

1. Adjustment of white balance.

①Input 16 steps monochrome green at 0.7Vpp with a timing signal of SVGA VESA(60).

②Adjust R665(W SUB CONTRAST) and R668(W SUB BRIGHT) so that brightness of 16 steps is best,....visual check.

③Input white at 0.7Vpp with a timing signal of SVGA VESA(60). And set CONTRAST , BRIGHT to maximum.

④Major the normally white chromaticity. And note these number. (x:xw,y:yw)

⑤Input gray pattern at 0.52Vpp with a timing signal of SVGA VESA(60).

⑥Adjust R870(R SUB BRIGHT) and R970(B SUB BRIGHT) so that the chromaticity at the center of the picture is x=xw-0.03±0.01,y=yw-0.03±0.01(middle-brightness white balance)

⑦Input gray pattern at 0.21Vpp with a timing signal of SVGA VESA(60).

⑧Adjust R862(R SUB CONTRAST) and R962(B SUB CONTRAST) so that the chromaticity at the center of the picture is x=xw-0.05±0.01,y=yw-0.05±0.01(low-brightness white balance)

⑨Repeat (5) to (8) and adjust middle-brightness and low-brightness white balance.
note When majoring and adjustment using Minolta CL-100.

4 - 3 Sample/Hold timing adjustment

Preparations for adjustment

①Input cross hatch monochrome green with a timing signal of SVGA VESA(60).

②Adjust H.PHASE of menu so that the best at vertical lines.

③Input vertical line (bright-black-black-bright-black-black-bright-.....)monochrome green with a timing signal of SVGA VESA(60).

④ Adjust S/H TIMING of adjustment menu (*) so that the most bright and same bright at all vertical lines.
note Never adjust FINE of adjustment menu (*).

* how to set up adjustment menu
1st Push MENU bottom 2nd Push RESET bottom and keep 5sec. or more. 3rd Select S/H of head line.

4 - 4 Sensor adjustment

Preparations for adjustment

①Apply heat-running for 10 minutes or more before adjustment.

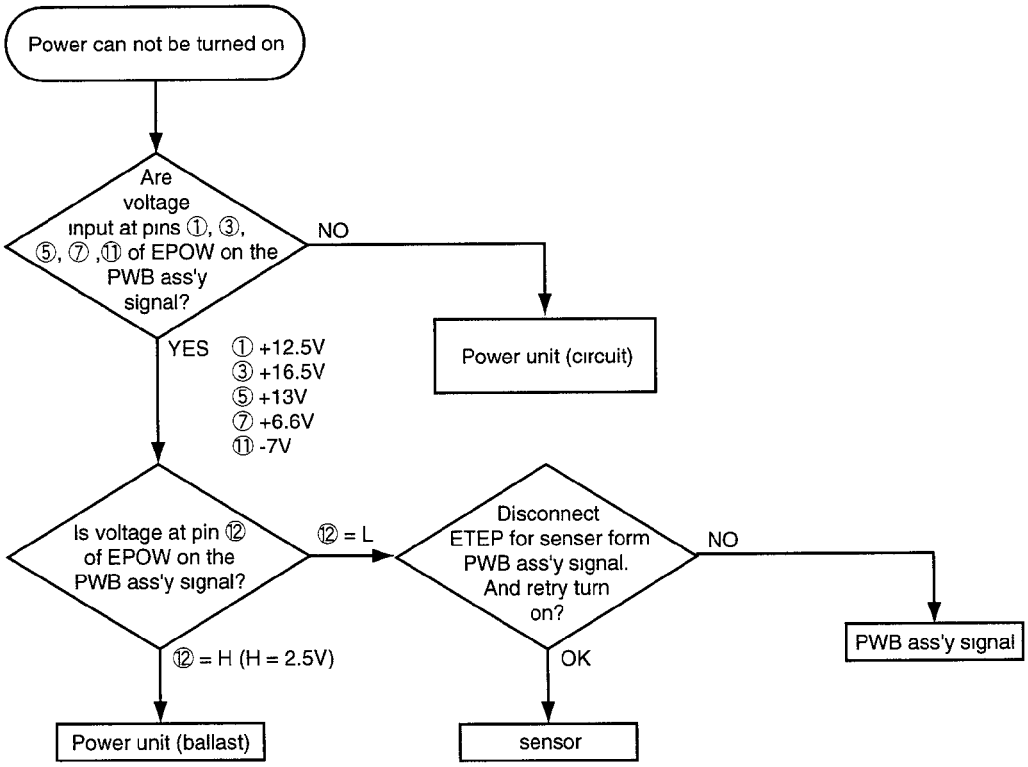
Adjustment procedure

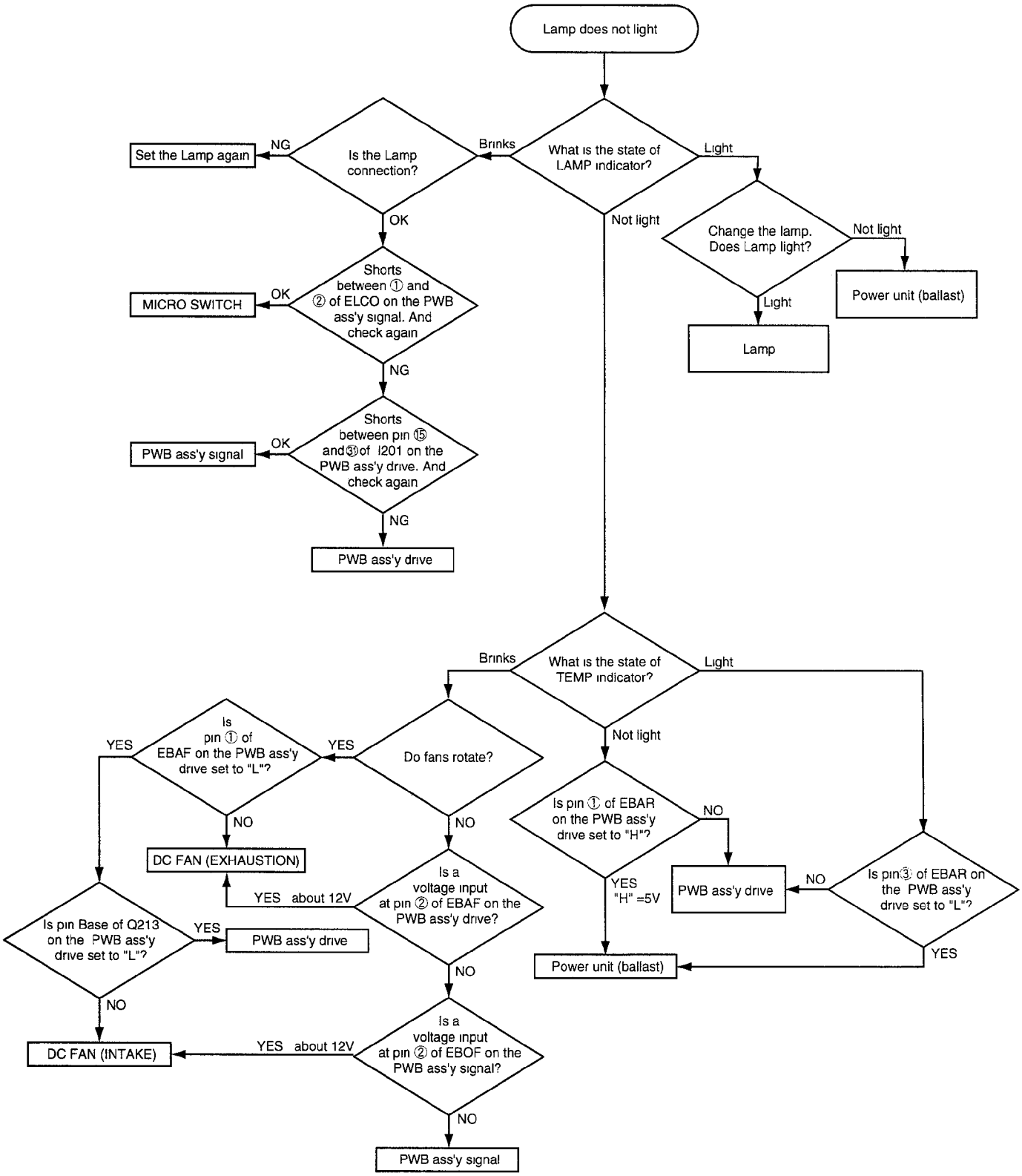
Adjust RW04 to get following values.

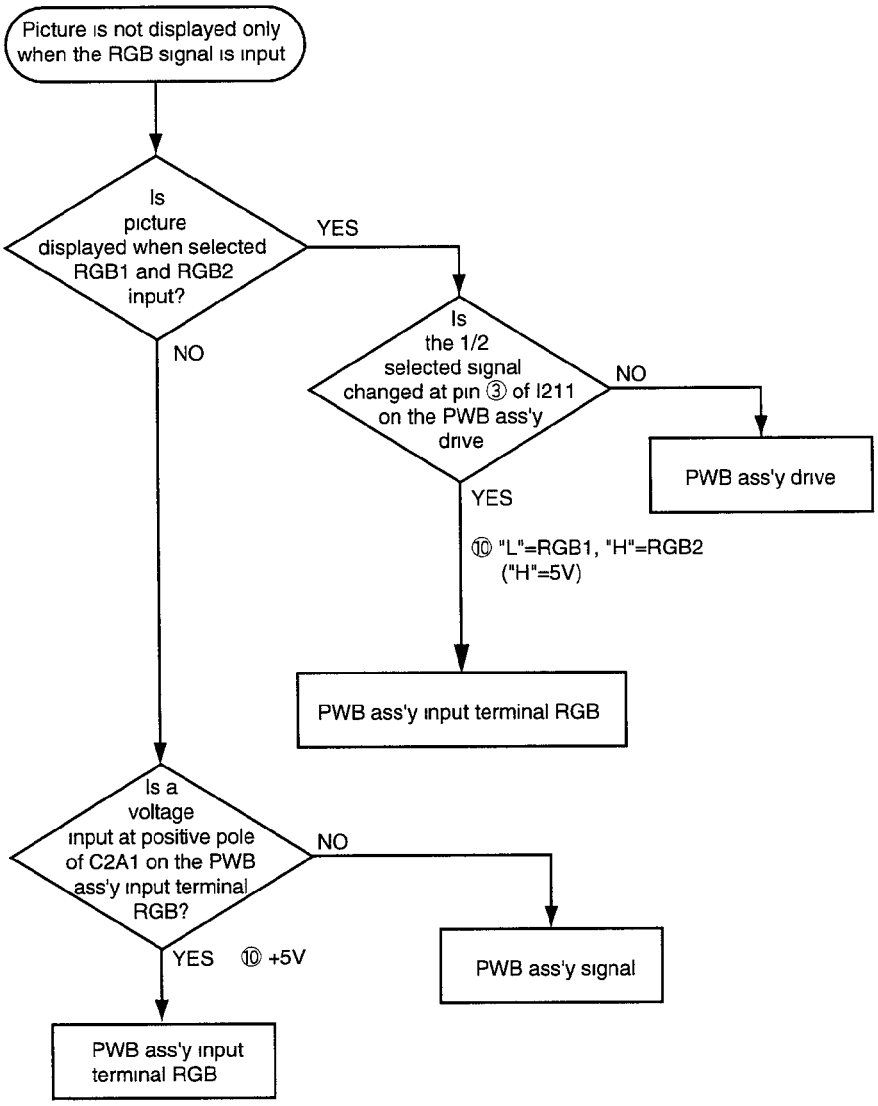
0.018 ± 0.002 [V]

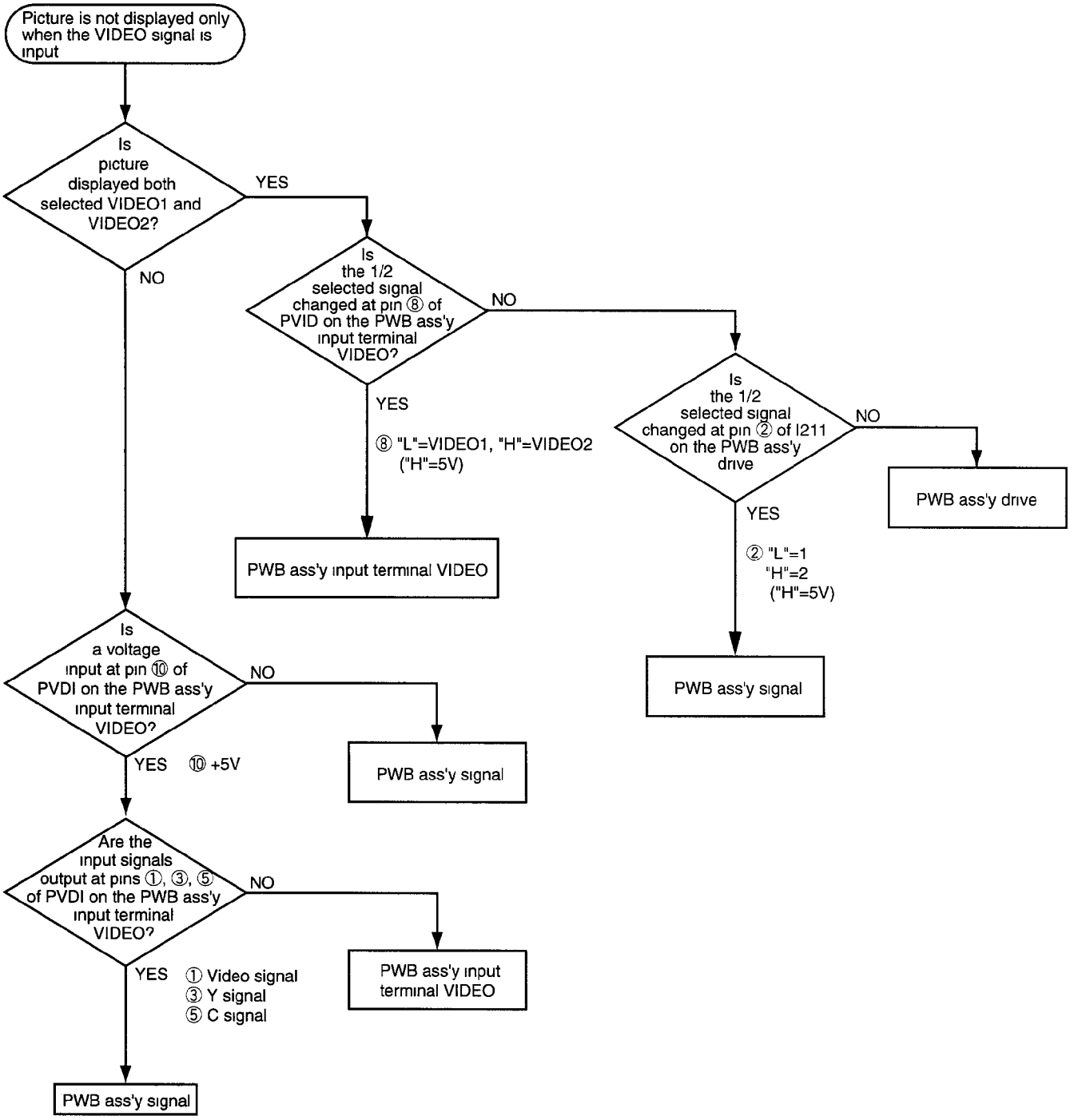
(Connect ⊕ side to TWT1 and ⊖side to TWT2 by digital meter.)

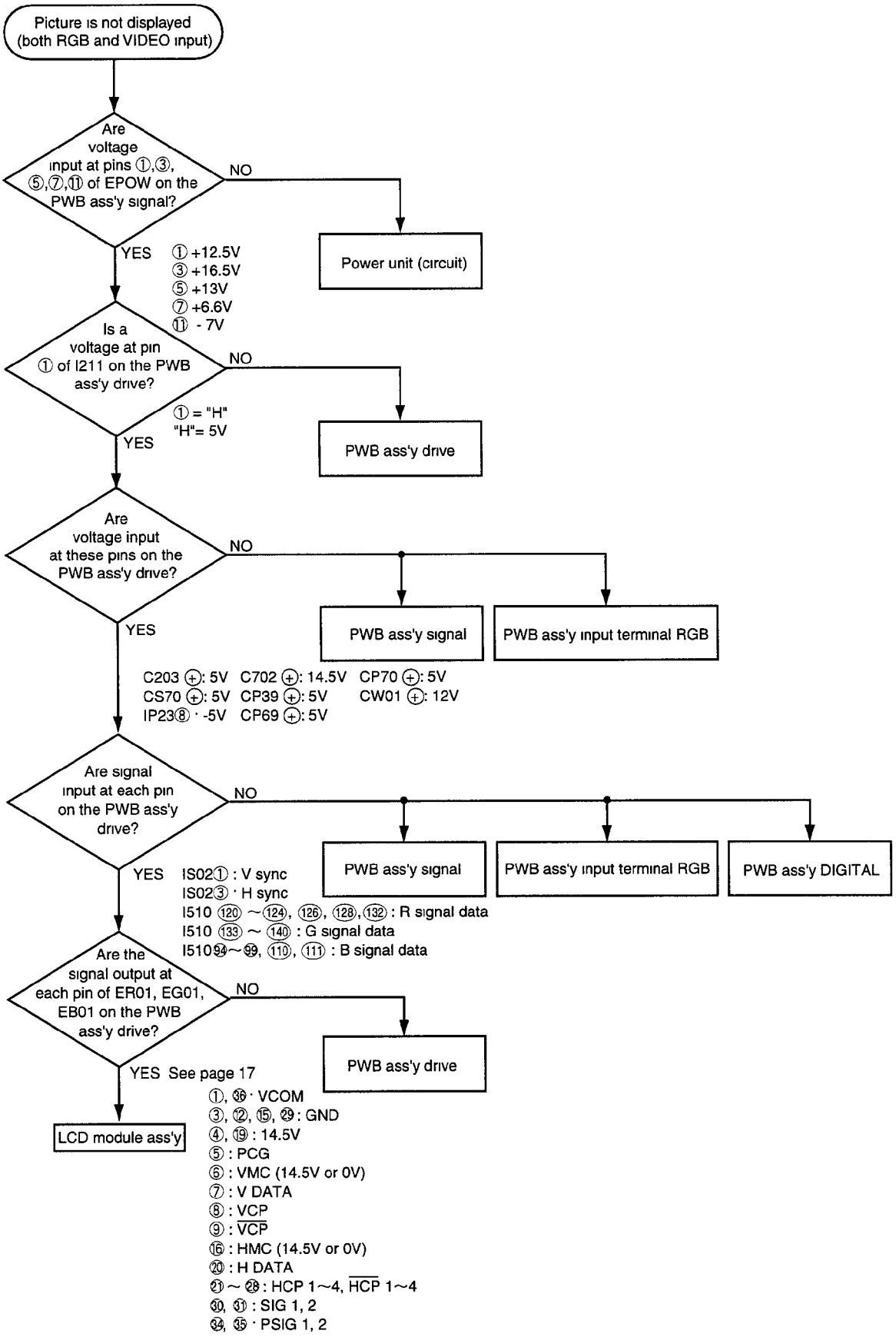
5. Troubleshooting

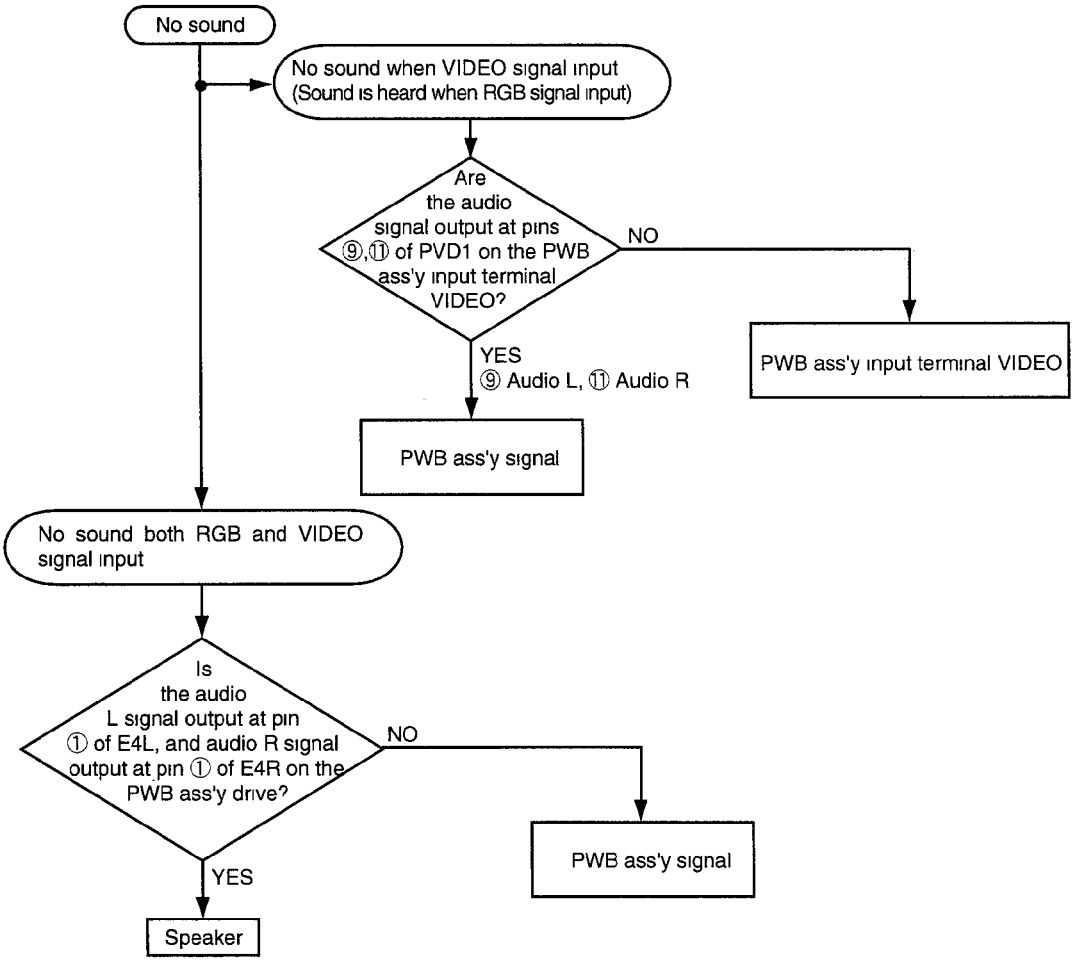

Power can not be turned on
Are voltage input at pins ①, ③, ⑤, ⑦ ,⑪ of EPOW on the PWB ass'y signal?
NO
Power unit (circuit)
YES
① +12.5V
③ +16.5V
⑤ +13V
⑦ +6.6V
⑪ -7V
Is voltage at pin ⑫ of EPOW on the PWB ass'y signal?
⑫ = L
Disconnect ETEP for senser form PWB ass'y signal. And retry turn on?
NO
PWB ass'y signal
⑫ = H (H = 2.5V)
OK
Power unit (ballast)
sensor

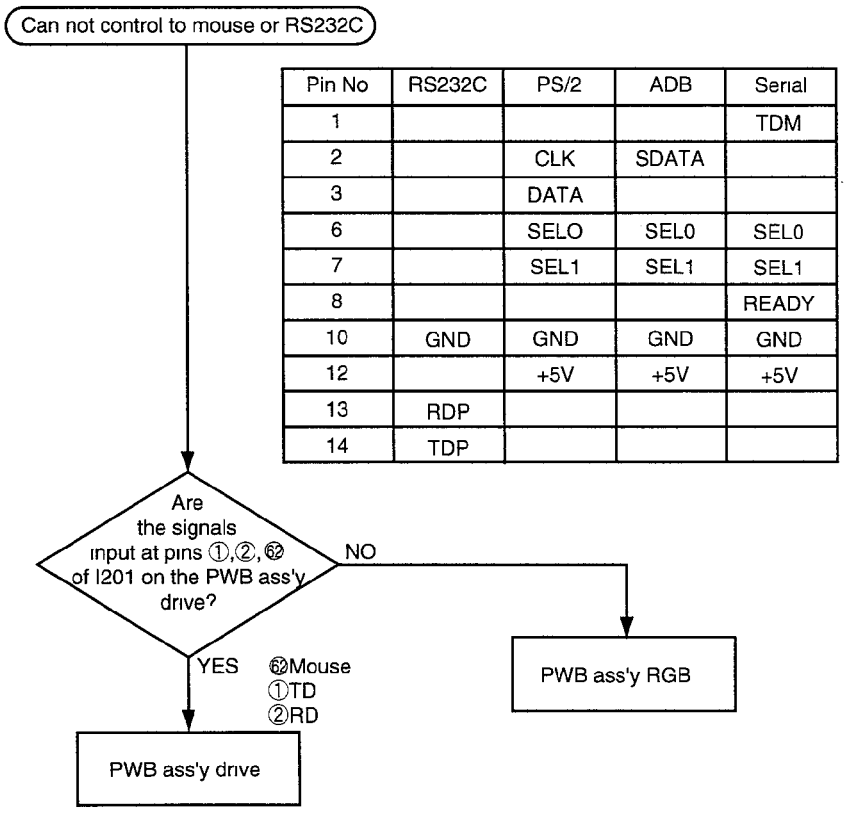

Lamp does not light
What is the state of LAMP indicator?
Brinks
Light
Not light
Is the Lamp connection?
NG
Set the Lamp again
OK
Shorts between ① and ② of ELCO on the PWB ass'y signal. And check again
OK
MICRO SWITCH
NG
Shorts between pin ⑮ and ㉛of I201 on the PWB ass'y drive. And check again
OK
PWB ass'y signal
NG
PWB ass'y drive
Change the lamp. Does Lamp light?
Not light
Power unit (ballast)
Light
Lamp
What is the state of TEMP indicator?
Brinks
Light
Not light
Do fans rotate?
YES
Is pin ① of EBAF on the PWB ass'y drive set to "L"?
YES
NO
DC FAN (EXHAUSTION)
NO
Is a voltage input at pin ② of EBAF on the PWB ass'y drive?
YES about 12V
Is pin Base of Q213 on the PWB ass'y drive set to "L"?
YES
PWB ass'y drive
NO
DC FAN (INTAKE)
NO
Is a voltage input at pin ② of EBOF on the PWB ass'y signal?
YES about 12V
NO
PWB ass'y signal
Is pin ① of EBAR on the PWB ass'y drive set to "H"?
NO
YES "H" =5V
PWB ass'y drive
NO
Is pin㉛ of EBAR on the PWB ass'y drive set to "L"?
YES
Power unit (ballast)


Picture is not displayed only when the RGB signal is input
Is picture displayed when selected RGB1 and RGB2 input?
YES
NO
Is the 1/2 selected signal changed at pin ③ of I211 on the PWB ass'y drive
NO
PWB ass'y drive
YES
⑩ "L"=RGB1, "H"=RGB2 ("H"=5V)
PWB ass'y input terminal RGB
Is a voltage input at positive pole of C2A1 on the PWB ass'y input terminal RGB?
NO
PWB ass'y signal
YES ⑩ +5V
PWB ass'y input terminal RGB


Picture is not displayed only when the VIDEO signal is input
Is picture displayed both selected VIDEO1 and VIDEO2?
YES
NO
Is the 1/2 selected signal changed at pin ⑧ of PVID on the PWB ass'y input terminal VIDEO?
NO
YES
⑧ "L"=VIDEO1, "H"=VIDEO2 ("H"=5V)
PWB ass'y input terminal VIDEO
Is the 1/2 selected signal changed at pin ② of I211 on the PWB ass'y drive
NO
PWB ass'y drive
YES
② "L"=1 "H"=2 ("H"=5V)
PWB ass'y signal
Is a voltage input at pin ⑩ of PVDI on the PWB ass'y input terminal VIDEO?
NO
PWB ass'y signal
YES ⑩ +5V
Are the input signals output at pins ①, ③, ⑤ of PVDI on the PWB ass'y input terminal VIDEO?
NO
PWB ass'y input terminal VIDEO
YES ① Video signal ③ Y signal ⑤ C signal
PWB ass'y signal


Picture is not displayed (both RGB and VIDEO input)
Are voltage input at pins ①,③, ⑤,⑦,⑪ of EPOW on the PWB ass'y signal?
NO
Power unit (circuit)
YES
① +12.5V
③ +16.5V
⑤ +13V
⑦ +6.6V
⑪ - 7V
Is a voltage at pin ① of I211 on the PWB ass'y drive?
NO
PWB ass'y drive
① = "H"
"H"= 5V
YES
Are voltage input at these pins on the PWB ass'y drive?
NO
PWB ass'y signal
PWB ass'y input terminal RGB
YES
C203 ⊕: 5V C702 ⊕: 14.5V CP70 ⊕: 5V
CS70 ⊕: 5V CP39 ⊕: 5V CW01 ⊕: 12V
IP23⑧ · -5V CP69 ⊕: 5V
Are signal input at each pin on the PWB ass'y drive?
NO
PWB ass'y signal
PWB ass'y input terminal RGB
PWB ass'y DIGITAL
YES
IS02① : V sync
IS02③ · H sync
I510 ⑫⓪ ~ ⑫④, ⑫⑥, ⑫⑧, ⑬② : R signal data
I510 ⑬③ ~ ⑭⓪ : G signal data
I510 ⑨④ ~ ⑨⑨, ⑪⓪, ⑪① : B signal data
Are the signal output at each pin of ER01, EG01, EB01 on the PWB ass'y drive?
NO
PWB ass'y drive
YES See page 17
LCD module ass'y
①, ㊱ · VCOM
③, ⑫, ⑮, ㉙ : GND
④, ⑲ : 14.5V
⑤ : PCG
⑥ : VMC (14.5V or 0V)
⑦ : V DATA
⑧ : VCP
⑨ : $\overline{VCP}$
⑯ : HMC (14.5V or 0V)
⑳ : H DATA
㉑ ~ ㉘ : HCP 1~4, $\overline{HCP}$ 1~4
㉚, ㉛ : SIG 1, 2
㉞, ㉟ · PSIG 1, 2

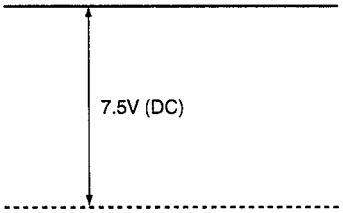

No sound
No sound when VIDEO signal input
(Sound is heard when RGB signal input)
Are the audio signal output at pins ⑨,⑪ of PVD1 on the PWB ass'y input terminal VIDEO?
NO
YES
⑨ Audio L, ⑪ Audio R
PWB ass'y input terminal VIDEO
PWB ass'y signal
No sound both RGB and VIDEO signal input
Is the audio L signal output at pin ① of E4L, and audio R signal output at pin ① of E4R on the PWB ass'y drive?
NO
YES
PWB ass'y signal
Speaker



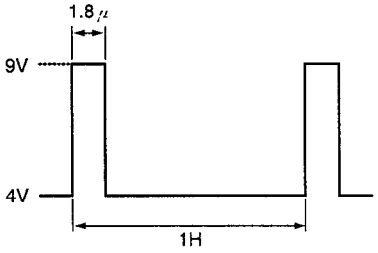
Pin No	RS232C	PS/2	ADB	Serial
1				TDM
2		CLK	SDATA	
3		DATA		
6		SELO	SEL0	SEL0
7		SEL1	SEL1	SEL1
8				READY
10	GND	GND	GND	GND
12		+5V	+5V	+5V
13	RDP			
14	TDP			

Signal waveforms of P501, P601 and P701 (Input signal is VGA3)

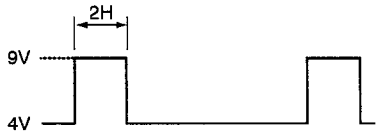
①, ㊱ V COM



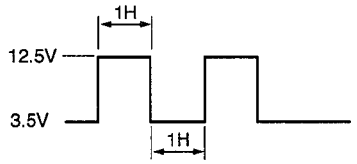
⑤ PCG



⑥ V DATA



⑧ VCP ⑨ $\overline{\text{VCP}}$

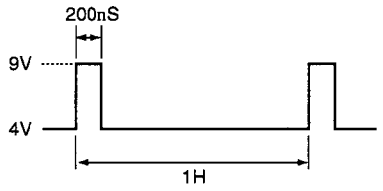


⑯ HMC

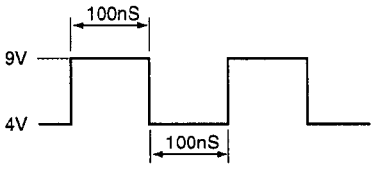
EG01 14.5V

ER01, EB01 GND

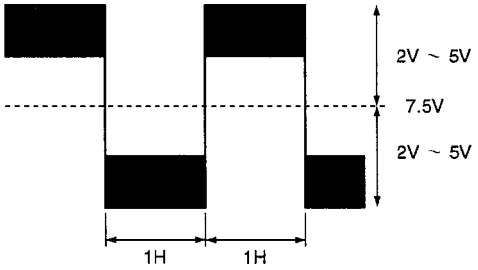
⑳ H DATA



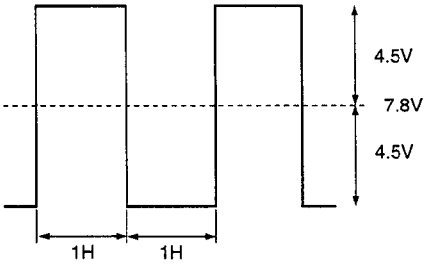
㉑ ~ ㉘ HCP



㉚, ㉛ SIG 1, 2



㉞, ㉟ PSIG 1, 2

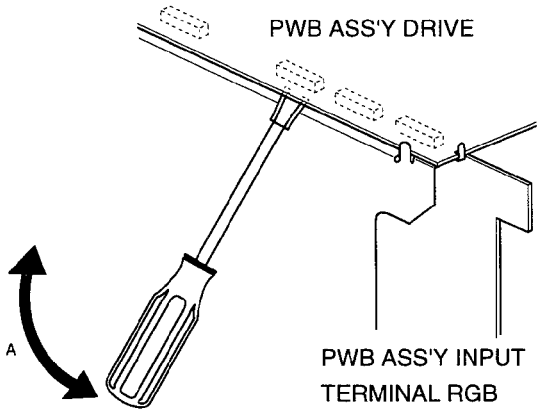


6. Service points

6 - 1 POINT

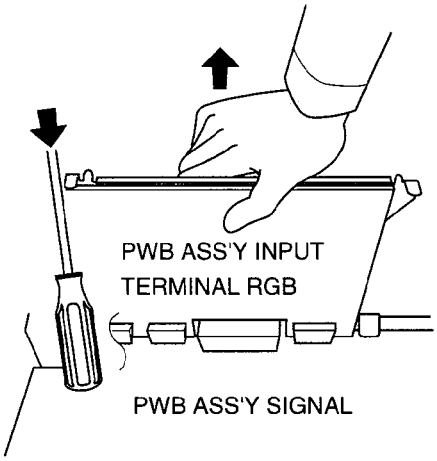
● Before Removing the Drive Base

Note that when removing the Drive Base, if you try to pull it by force, you may damage the connector linked with the RGB Input Terminal Base. When removing the Drive Base, first insert a flat-blade screwdriver with its end protected with adhesive tape etc. into the slot between the Drive Base and the RGB Input Terminal Base. Then please move the screwdriver in the direction of the arrow, in a way that it does not damage the Drive Base.



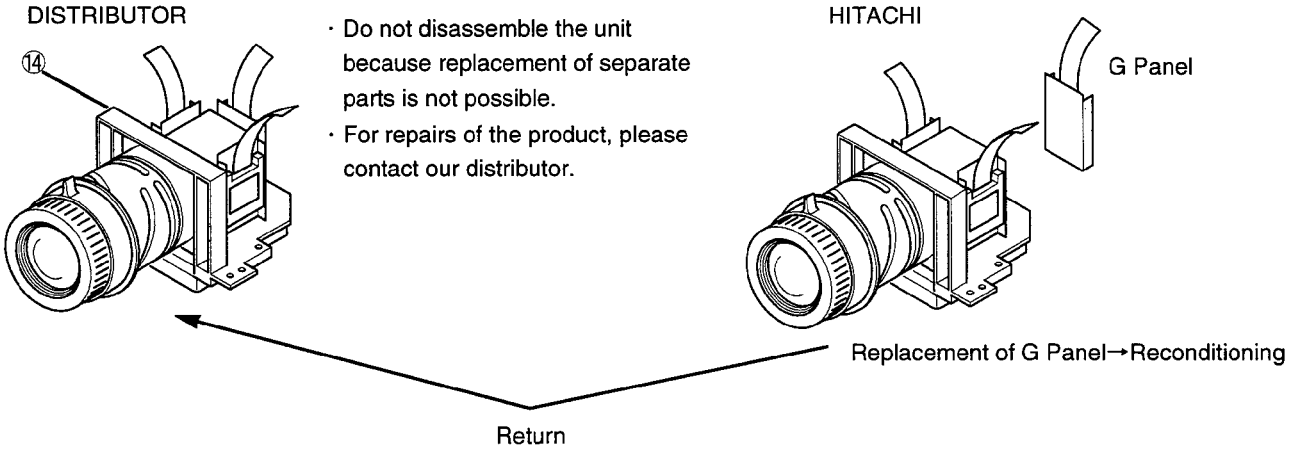
● Before Removing the RGB Input Terminal Base

When removing the RGB Input Terminal Base, the signal base may bend and get damaged. When removing the RGB Input Terminal Base, please push the signal base with a screwdriver's grip etc. in a way that the base does not get damaged, then remove the RGB Input Terminal Base.



● Before Replacing the Panel / Lens Prism

You should not replace separately the parts of the liquid crystal Panel / Lens Prism because it works properly only when used together. Therefore, regarding these parts, you can either replace part NO. 14, Panel / Lens Prism Assembly, or send the whole unit NO. 14 back to Hitachi, where we will replace the malfunctioning part, recondition the device and send it back to you. In that case please contact our distributor.


DISTRIBUTOR
⑭
· Do not disassemble the unit because replacement of separate parts is not possible.
· For repairs of the product, please contact our distributor.
HITACHI
G Panel
Replacement of G Panel→Reconditioning
Return

6 - 2 Removing the PWB ass'y input terminal Video, the upper case, the PWB ass'y drive, the PWB ass'y digital, the PWB ass'y input terminal RGB, the dichroic optics unit, the lens prism unit, the DC fan (exhaust) and the DC fan (intake). (Fig.6-2)

(1) Removing the PWB ass'y input terminal video.

1. Remove a screw B0.
2. Disconnect a connector for PWB ass'y signal from the PWB ass'y input terminal video.

(2) Removing the upper case.

1. Remove the PWB ass'y input terminal video.
   (Refer to item 6-2 (1).)
   Please remove carefully the upper case because the speaker connectors are short wire.
2. Remove 5 screws B1 and remove the upper case ass'y and disconnect the operation panel connector and 2 connectors for speaker from PWB ass'y drive.

(3) Removing the PWB ass'y drive.

1. Remove the PWB ass'y input terminal video.
   (Refer to item 6-2 (1).)
2. Remove the upper case.
   (Refer to item 6-2 (2).)
3. Release the lock of the connector housing and disconnect the FPC of the LCD module ass'y.
4. Remove 4 screws B2 and disconnect 3 connectors for the DC fans and the power unit.
5. Remove PWB ass'y drive form PWB ass'y input terminal RGB.

(4) Removing the PWB ass'y digital.

1. Remove the PWB ass'y input terminal video.
   (Refer to item 6-2 (1).)
2. Remove the upper case.
   (Refer to item 6-2 (2).)
3. Removing the PWB ass'y drive.
   (Refer to item 6-2 (3).)
4. Remove 2 screws B3 and remove the PWB ass'y digital form PWB ass'y drive.

(5) Removing the PWB ass'y input terminal RGB.

1. Remove the PWB ass'y input terminal video.
   (Refer to item 6-2 (1).)
2. Remove the upper case.
   (Refer to item 6-2 (2).)
3. Remove the PWB ass'y drive.
   (Refer to item 6-2 (3).)
4. Remove a screw B4 and disconnect 3 connectors and remove the PWB ass'y input terminal RGB.

(6) Removing the dichroic optics unit.

1. Remove the PWB ass'y input terminal video.
   (Refer to item 6-2 (1).)
2. Remove the upper case.
   (Refer to item 6-2 (2).)
3. Remove the PWB ass'y drive.
   (Refer to item 6-2 (3).)
4. Removing the PWB ass'y input terminal RGB.
   (Refer to item 6-2 (4).)
5. Remove 3 screws B5 and disconnect a connector for DC fan (intake).
6. Remove 3 screws B6 and disconnect a connector for the lamp.

(7) Removing the lens prism unit.
1. Remove the PWB ass'y input terminal video.
(Refer to item 6-2 (1).)
2. Remove the upper case.
(Refer to item 6-2 (2).)
3. Remove the PWB ass'y drive.
(Refer to item 6-2 (3).)
4. Removing the PWB ass'y input terminal RGB.
(Refer to item 6-2 (4).)
5. Removing the dichroic optics unit.
(Refer to item 6-2 (5).)
6. Remove 2 screws B7

(8) Removing the DC fan (exhaust).
1. Remove the PWB ass'y input terminal video.
(Refer to item 6-2 (1).)
2. Remove the upper case.
(Refer to item 6-2 (2).)
3. Remove the PWB ass'y drive.
(Refer to item 6-2 (3).)
4. Removing the PWB ass'y input terminal RGB.
(Refer to item 6-2 (4).)
5. Removing the dichroic optics unit.
(Refer to item 6-2 (5).)
6. Remove 3 screws B8

(9) Removing the DC fan (intake).
1. Remove the PWB ass'y input terminal video.
(Refer to item 6-2 (1).)
2. Remove the upper case.
(Refer to item 6-2 (2).)
3. Remove the PWB ass'y drive.
(Refer to item 6-2 (3).)
4. Removing the PWB ass'y input terminal RGB.
(Refer to item 6-2 (4).)
5. Removing the dichroic optics unit.
(Refer to item 6-2 (5).)
6. Remove 3 screws B9

6 - 3 Removing power unit (ballast), the DC fan (power), the power unit (circuit) and PWB ass'y signal.

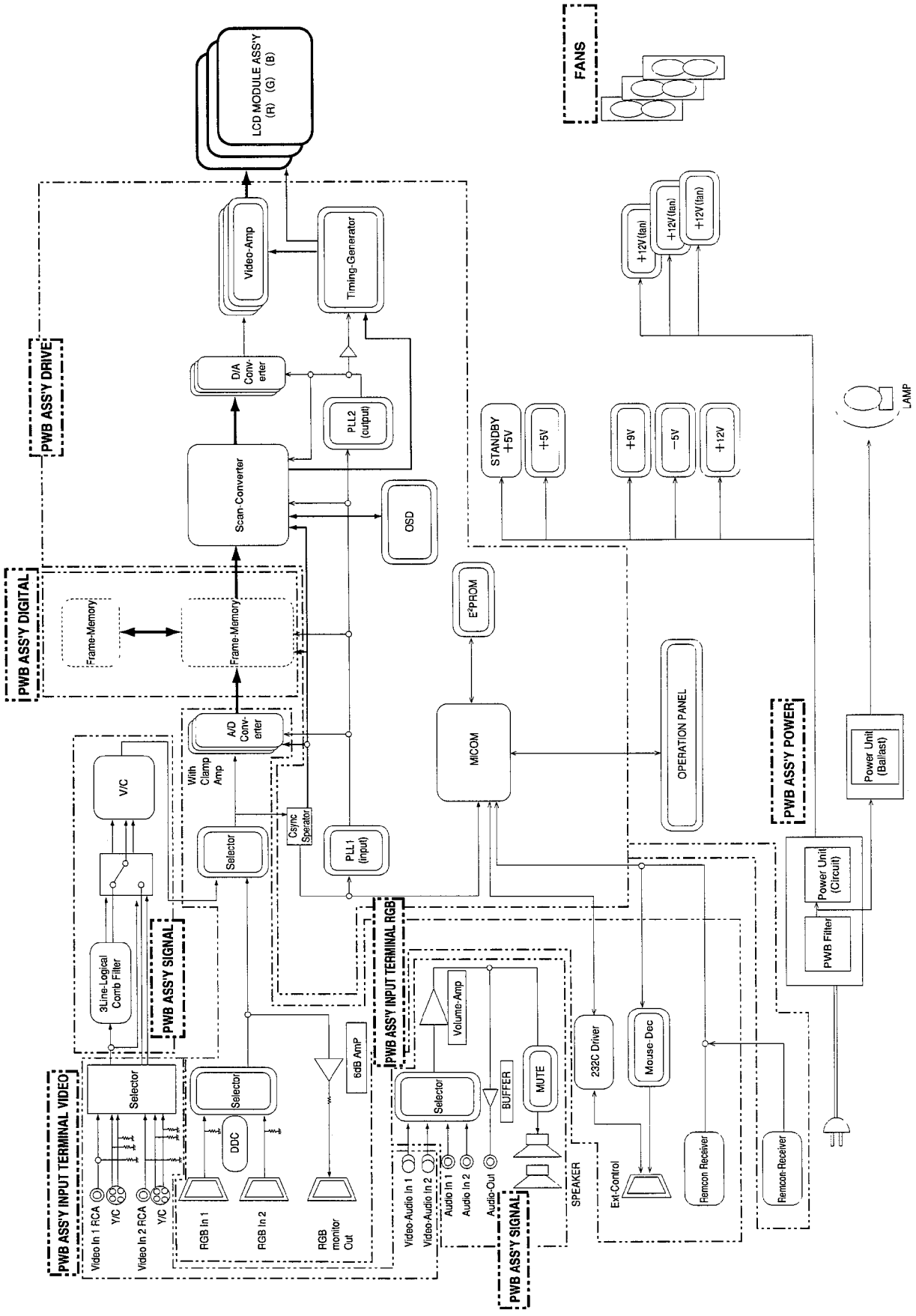
Removing the PWB ass'y input terminal Video, the upper case, the PWB ass'y drive, the PWB ass'y digital, the PWB ass'y input terminal RGB, the dichroic optics unit, the lens prism unit, the DC fan (exhaust) and the DC fan (intake). (Refer to 6-2.)

(1) Removing the power unit.
1. Remove 3 screws C1.

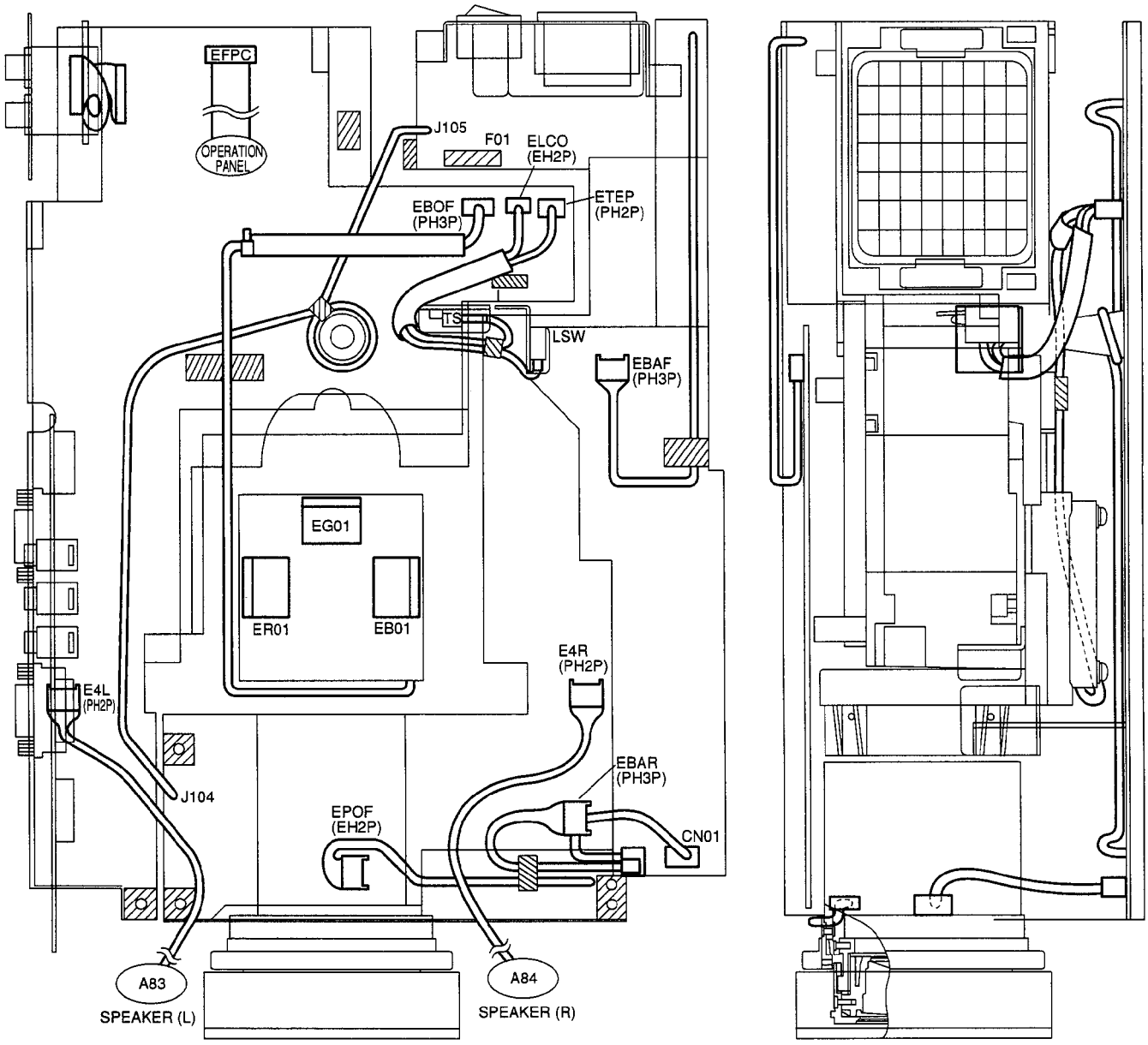
(2) Removing the DC fan (power).
1. Remove 4 screws C2.

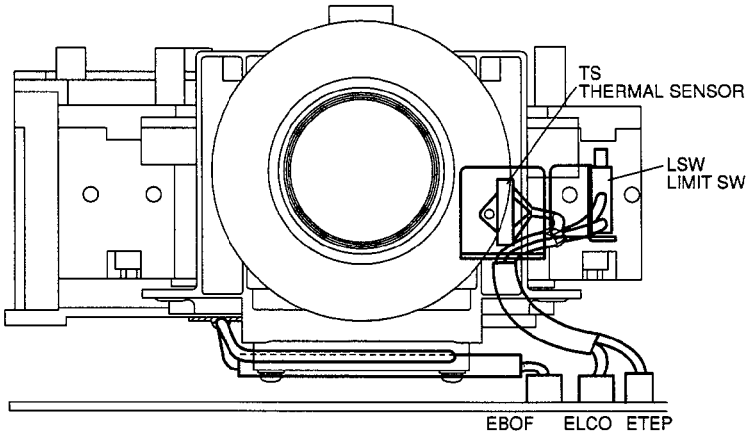
(3) Removing PWB ass'y signal.
1. Release 4 lock claws.

7. Block diagram

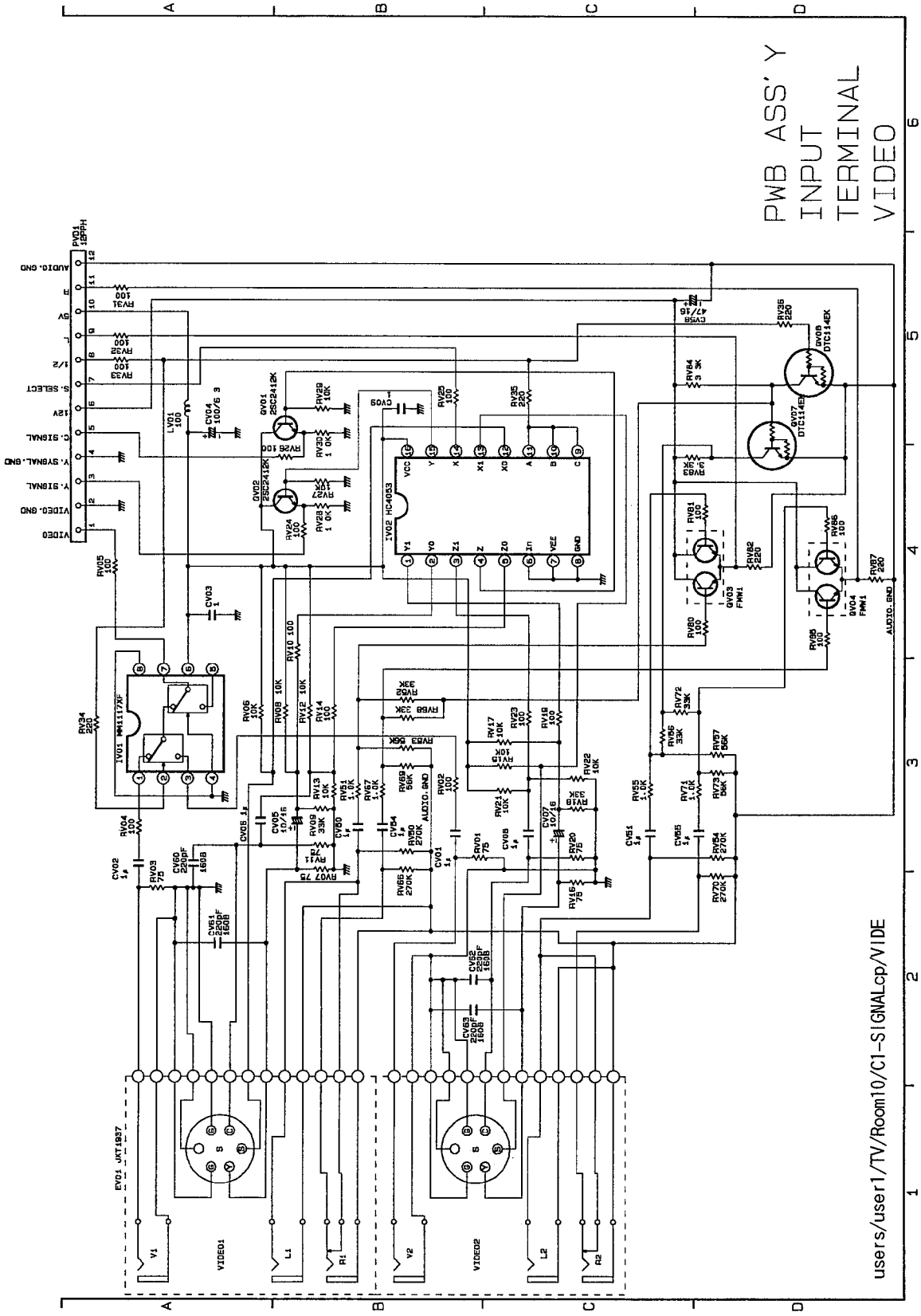


8. Wiring diagram





9. Basic circuit diagram



to VIDEO INPUT

A-RGB1 IN

A-RGB2 IN

AUDIO OUT

users/user1/TV/Room10/C1-SIGNALcp/SIGNAL

PWB ASS' Y SIGNAL

CONT IN

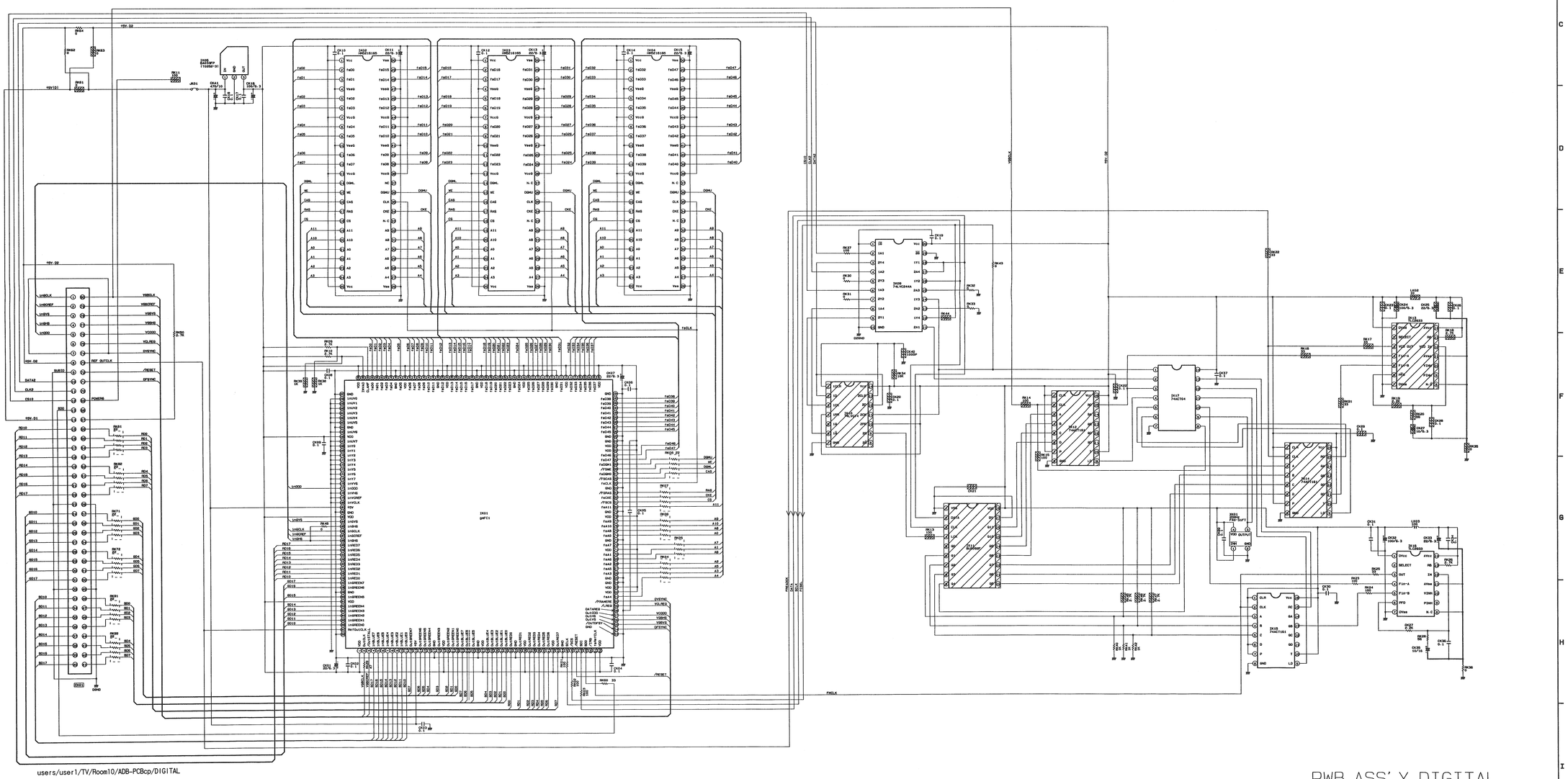
RGB IN1

RGB IN2

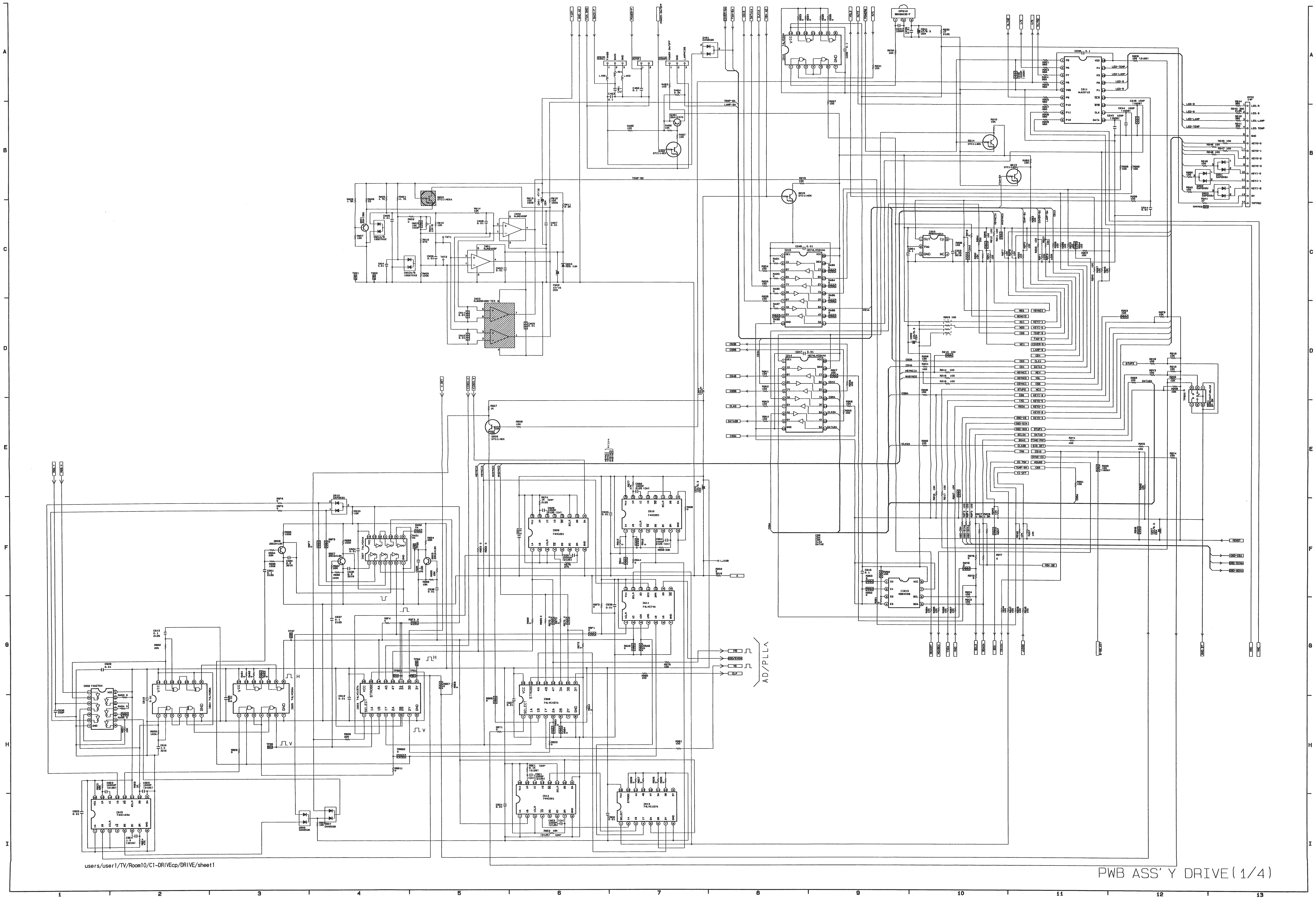
RGB OUT

users/user1/TV/Room10/C1-SIGNAL.cp/RGBA

PWB ASS'Y RGB INPUT TERMINAL



PWB ASS' Y DIGITAL

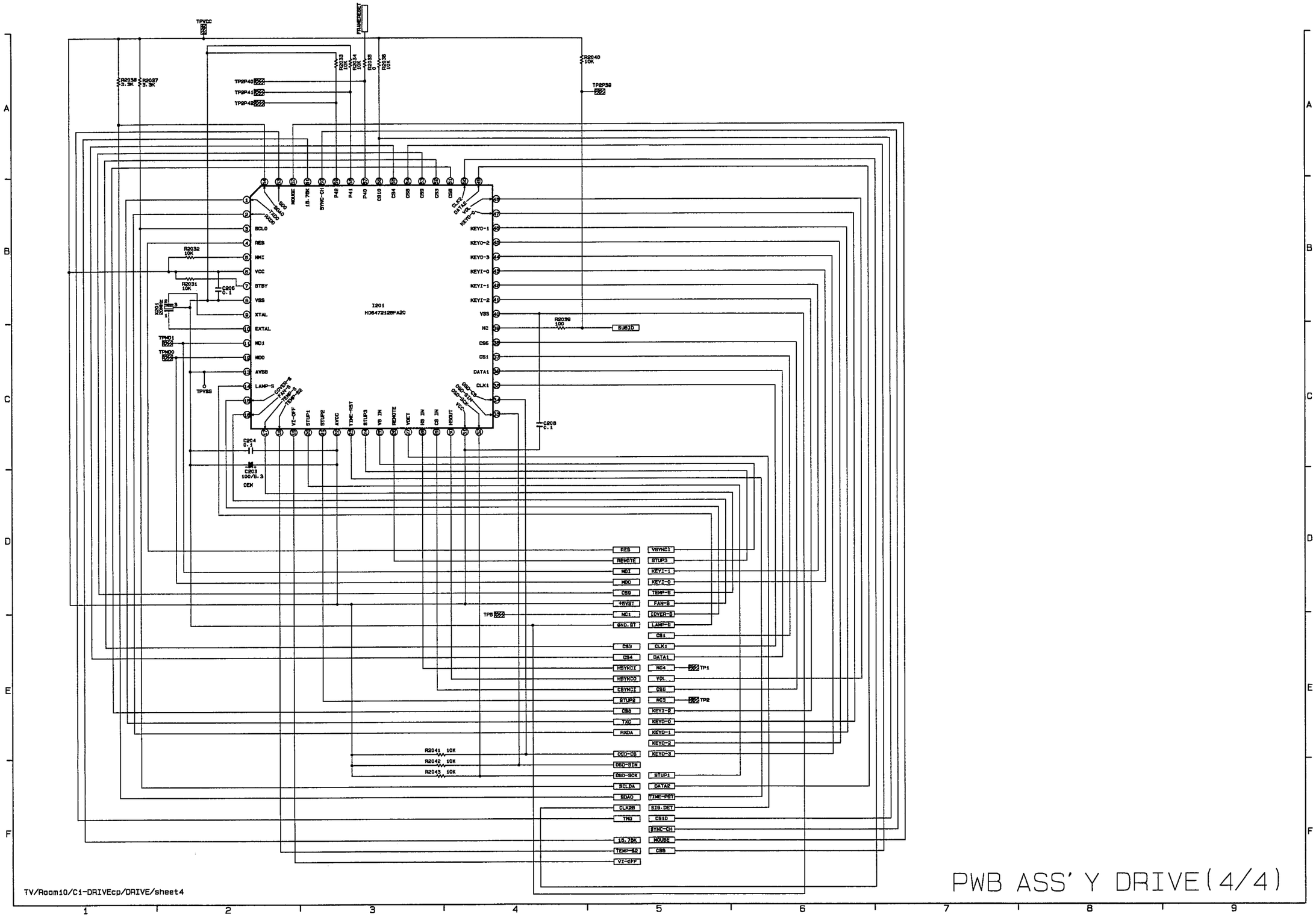

PWB ASS' Y DRIVE(1/4)
users/user1/TV/Room10/C1-DRIVEcp/DRIVE/sheet1
I211 NJU3713
I215 HD74LVC244A
I214 HD74LVC244A
I210 74LVC00A
I203 RN5VD42CA
II213 M24C08
IS02 74ACT04
IS04 74LVC86A
IS05 74LVC00A
IS03 74LVC157A
IS07 74LVC04A
IS08 74LVC157A
IS09 74HC221
IS10 74HC221
IS11 74LVC74A
IS13 74LVC157A
IS14 74HC221
IS15 74HC123A
IW01 NJM2406F
IW02 NJM2406F
IW03 NJM2904MN-TE3
CPP210 SBX81035-F
EFPC 14P
AD/PLL

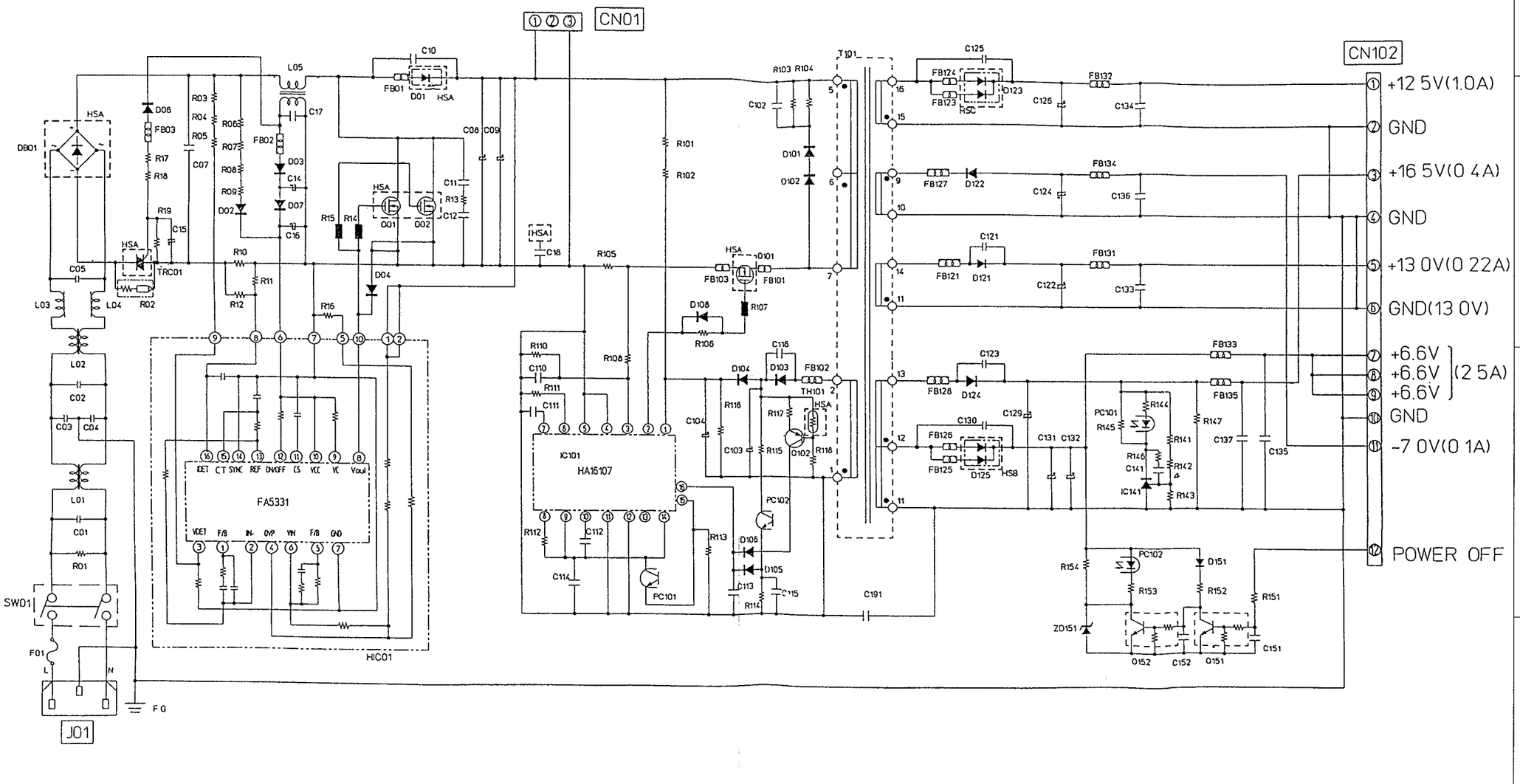
users/user1/TV/Room10/C1-DRIVEcp/DRIVE/sheet2

PWB ASS'Y DRIVE(2/4)

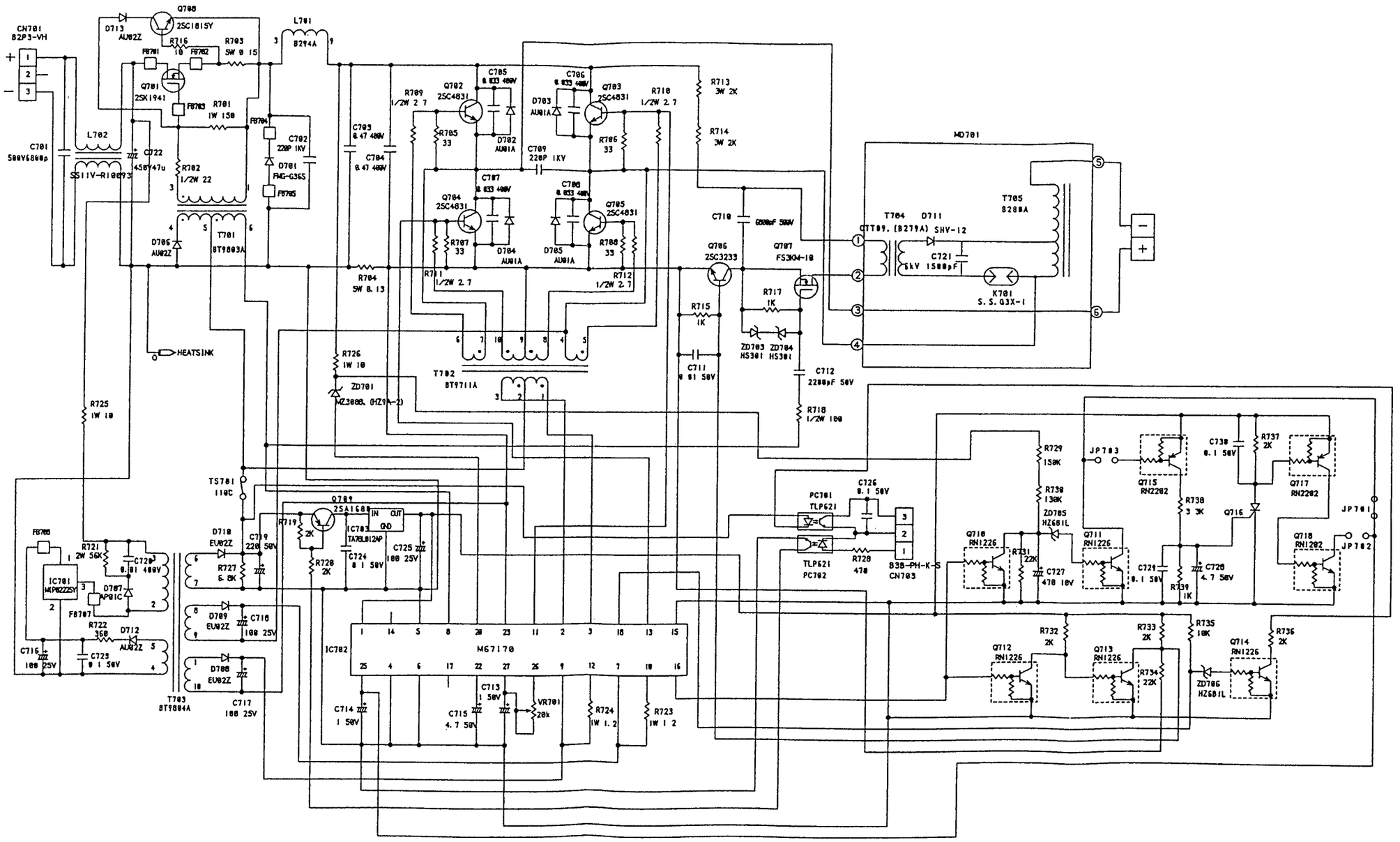
users/user1/TV/Room10/C1-DRIVEcp/DRIVE/sheet3

PWB ASS'Y DRIVE(3/4)


TPVCC
FRAMERESET
R2040 10K
R2038 3.3K
R2037 3.3K
TP2P40
TP2P41
TP2P42
TP2P39
R2032 10K
R2031 10K
C206 0.1
X201 20MHz
TPMD1
TPMD0
TPVSS
I201
HD6472128FA20
R2039 100
SUBID
C208 0.1
C204 0.1
C203 100/6.3
CEM
TP5
R2041 10K
R2042 10K
R2043 10K
RES
REMOTE
MDI
MDO
CS9
+5VBT
NC1
GND.ST
CS3
CS4
HSYNCI
HSYNCO
CSYNCI
STUP2
CS8
TXD
RXDA
OSD-CS
OSD-SIN
OSD-SCK
SCLDA
SDAO
CLK2B
TRU
16.78K
TEMP-SD
VI-OFF
VSYNCI
STUP3
KEY1-1
KEY1-0
TEMP-S
FAN-S
COVER-S
LAMP-S
CS1
CLK1
DATA1
NC4
TP1
VOL
CS5
NC3
TP2
KEY1-2
KEY0-0
KEY0-1
KEY0-2
KEY0-3
STUP1
DATA2
TIME-RST
SIG.DET
CS10
SYNC-CH
MOUBE
CS6
TV/Room10/C1-DRIVEcp/DRIVE/sheet4
PWB ASS' Y DRIVE(4/4)

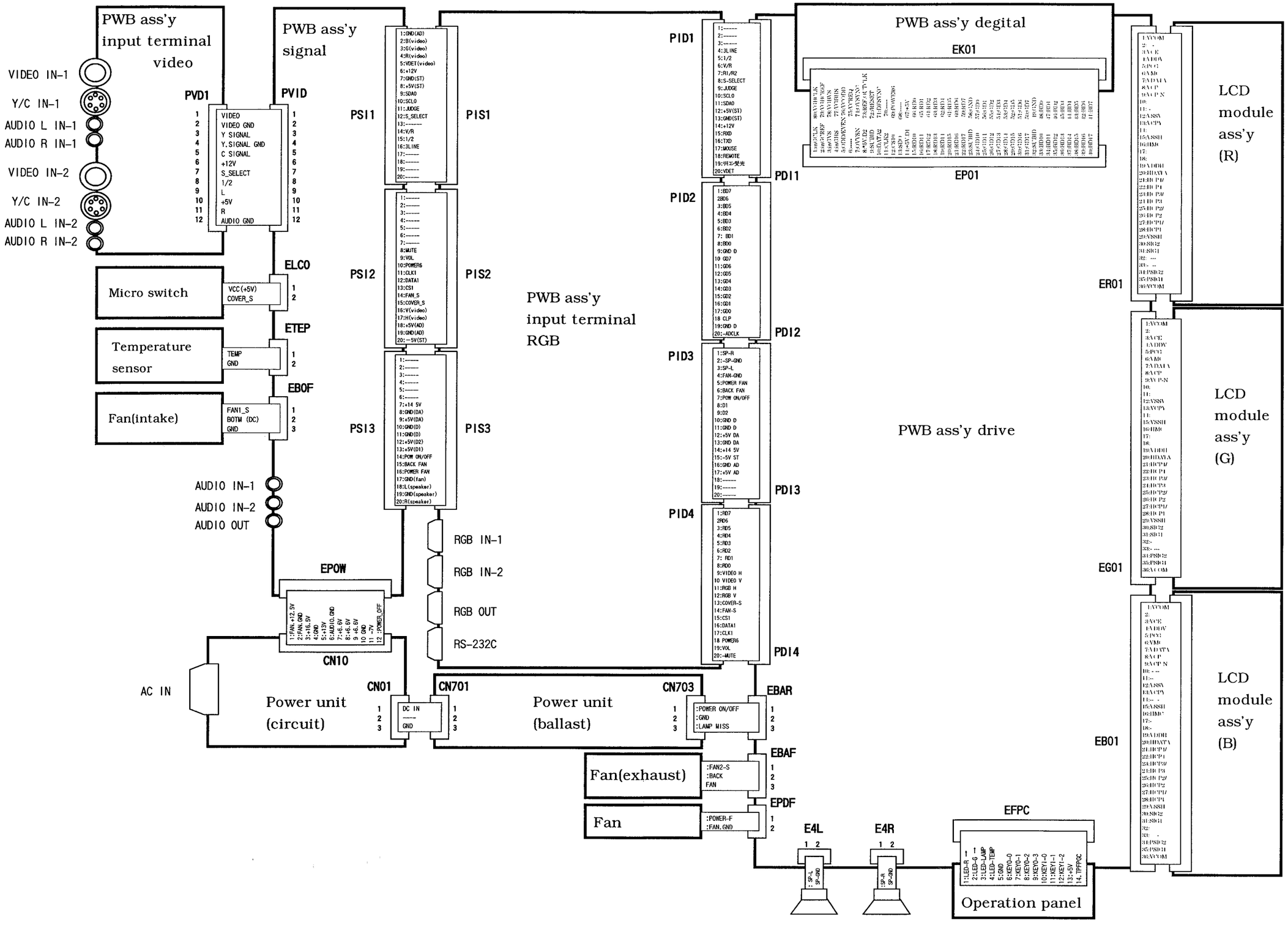


POWER UNIT (CIRCUIT)

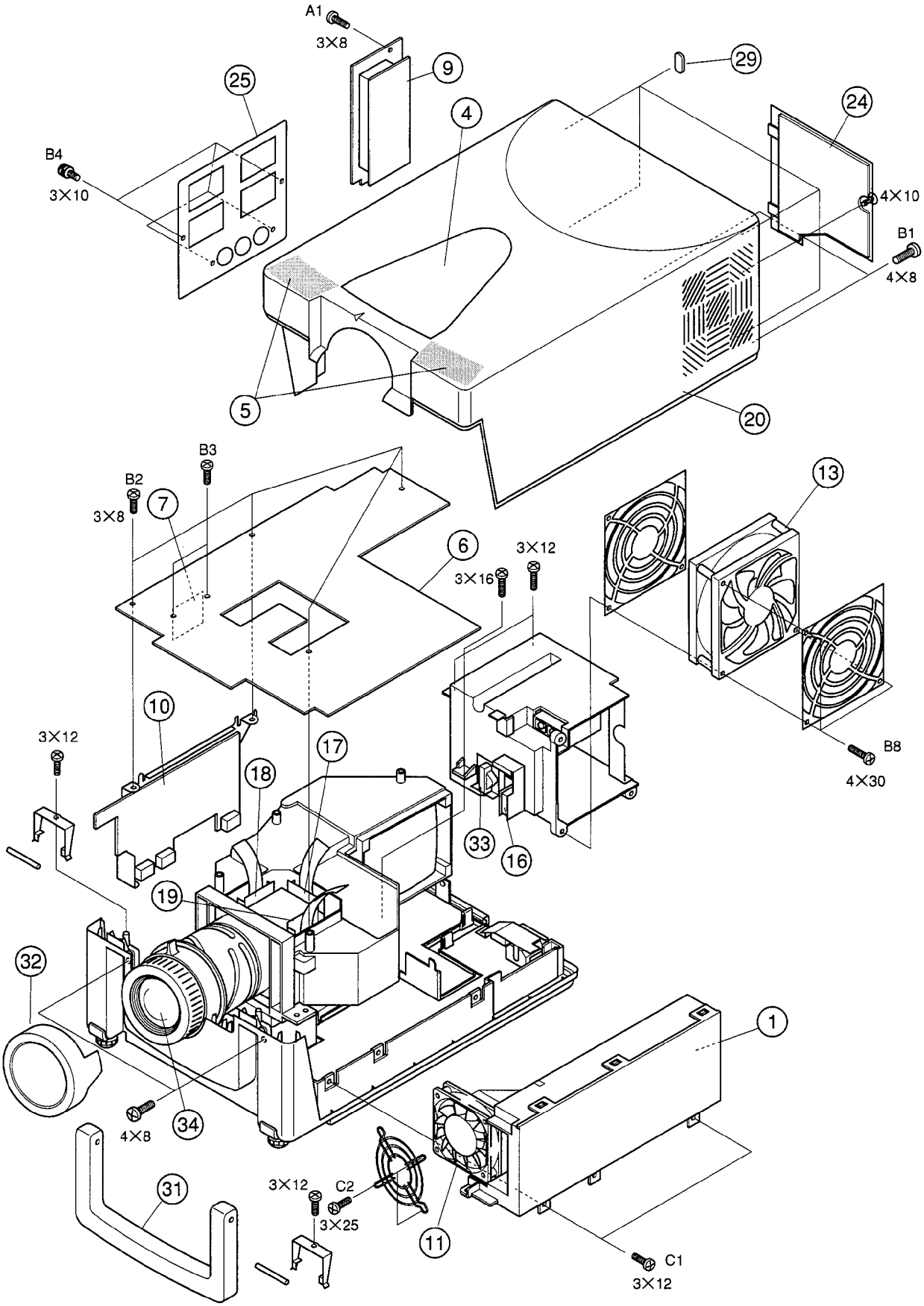


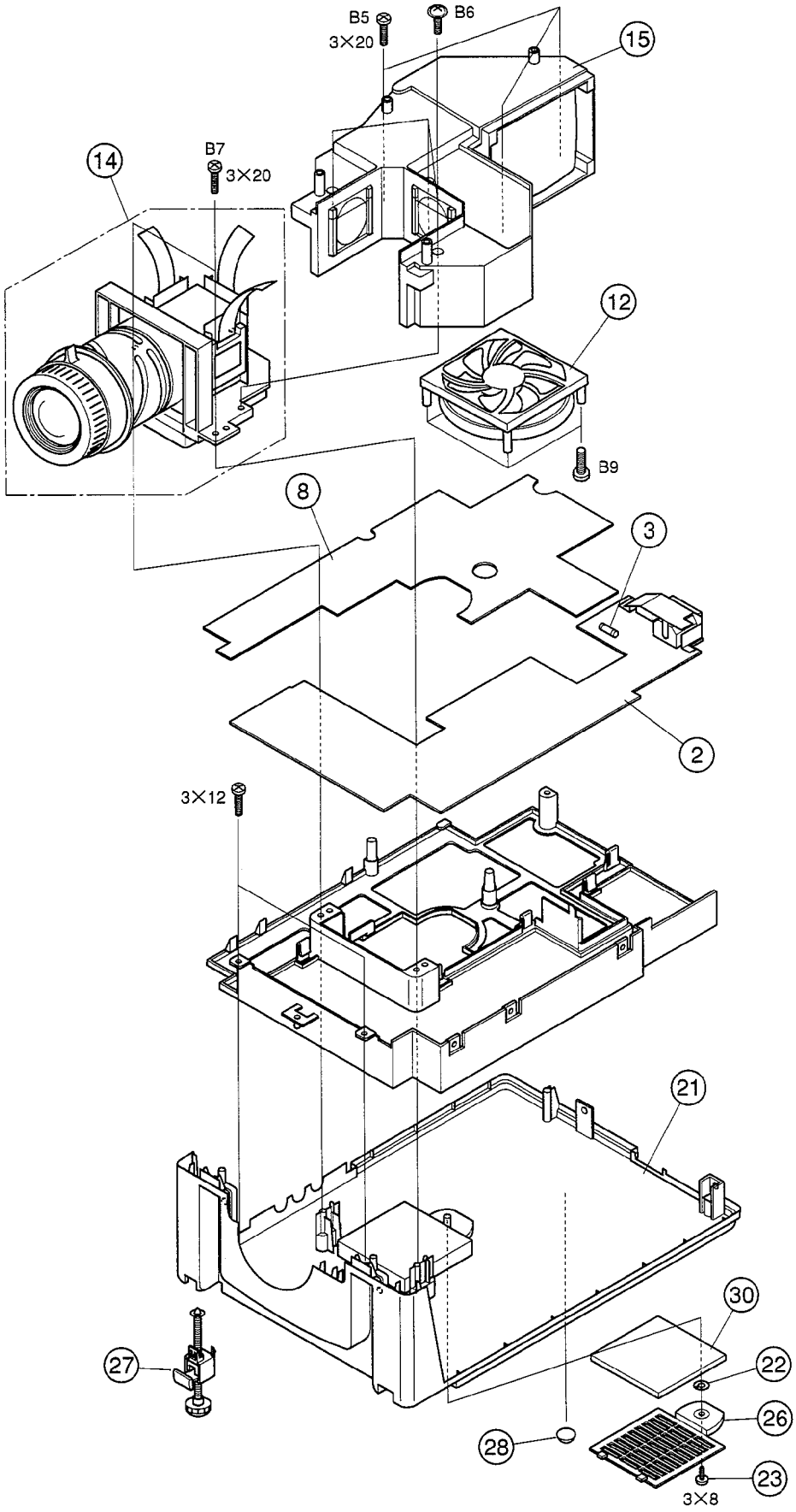
POWER UNIT (BALLAST)

10. Connector connection diagram



11. Disassembly diagram




B5
3×20
B6
15
14
B7
3×20
12
B9
8
3
2
3×12
21
30
27
22
26
28
23
3×8

12. Replacement Parts list

PRODUCT SAFETY NOTE . Components marked with a ⚠ have special characteristics important to safety. Before replacing any of there components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PARTS NO.	DESCRIPTION	SYMBOL NO.	PARTS NO.	DESCRIPTION
1	HA00501	POWER UNIT(BALLAST)	24	QD06231	LAMP COVER
2	HA00491	POWER UNIT(CIRCUIT)	25	PM07241	I/O DECO PANEL
3	2722447	FUSE 5A 250V	26	QD06241	FILTER COVER
4	HP00711	OPERATION PANEL SWITCH UNIT	27	QJ00571	ADJUST FOOT
5	GK00392	SPEAKER	28	PE00052	RUBBER FOOT
6	JP03025B	PWB ASS'Y DRIVE	29	PE00094	LEG CUSHION R
7	JP03026	PWB ASS'Y DIGITAL	30	MU00421	AIR FILTER
8	JP03032	PWB ASS'Y SIGNAL	31	PV00201	HANDLE
9	JP03033	PWB ASS'Y INPUT TERMINAL VIDEO	32	QD06311	LENS CAP
10	JP03034	PWB ASS'Y INPUT TERMINAL RGB	33	FU00252	THERMAL SENSOR SWITCH
11	GS00341	DC FAN(POWER)	34	–	C1 LENS ASS'Y
12	GS00351	DC FAN(INTAKE)			
13	GS00331	DC FAN(EXHAUST)		EV00241	POWER SUPPLY CORD(UL/CSA TYPE 125V)
14	–	LCD/LENS PRISM ASS'Y			(only CP-S830W)
15	UE05051	DICHROIC OPTICS UNIT C1A		HL00952	REMOTE CONTROL UNIT
16	FH00041	LIMIT SWITCH (MICRO SWITCH)		EV00341	POWER SUPPLY CORD (U.K.TYPE)
17	–	LCD MODULE ASS'Y(G)		2745304	POWER SUPPLY CORD(CONTINENTAL TYPE)
18	–	LCD MODULE ASS'Y(R)		EW04101	RGB-D CABLE(15PIN MALE TO 15PIN MALE)
19	–	LCD MODULE ASS'Y(B)		EW10933	CABLE.AV
20	QD05851	UPPER CASE ASS'Y		EY00641	MAC ADAPTER(6SW)
21	QD05861	BOTTOM CASE ASS'Y		EW02751	CABLE.MOUSE PS/2
22	MN01302	POLY-WASHER		EW02741	ADB MOUSE CABLE
23	MJ00311	NOB SCREW		EW02731	SERIAL MOUSE CABLE

HITACHI

CP-S830W YK No. 0488E Information & Image Systems Division
CP-S830E Yokohama Operation

QR27681 Printed in Japan (M)

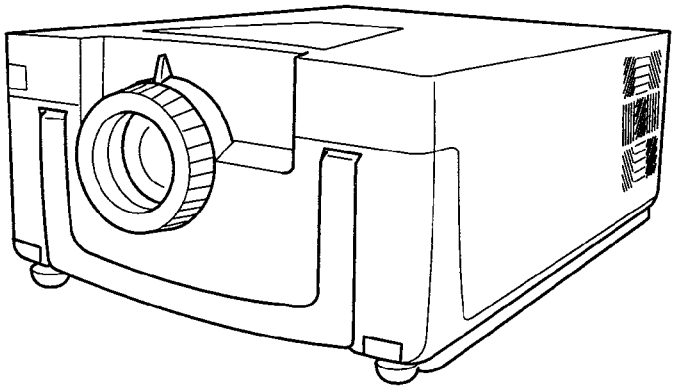
HITACHI

YK | No. 0488E-1

SERVICE MANUAL

SUPPLEMENT

CP-S830W
CP-S830E



Note

Some adjustments changed for improvement of image quality.
Compared with original SERVICE MANUAL, ① add adjustment of color correction circuit, ② change adjustment of white balance, ③ change panel phase adjustment.

Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi liquid crystal projector. Be sure to read cautionary items described in the manual to maintain safety before servicing.

Service Warning

1. When replace the lamp, to avoid burns to your fingers. The lamp becomes too hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit (main), when turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. The LCD module ass'y is likely to be damaged. If replacing to the LCD module ass'y, do not hold the FPC of the LCD module ass'y.

Contents

1. Adjustment ····· 2

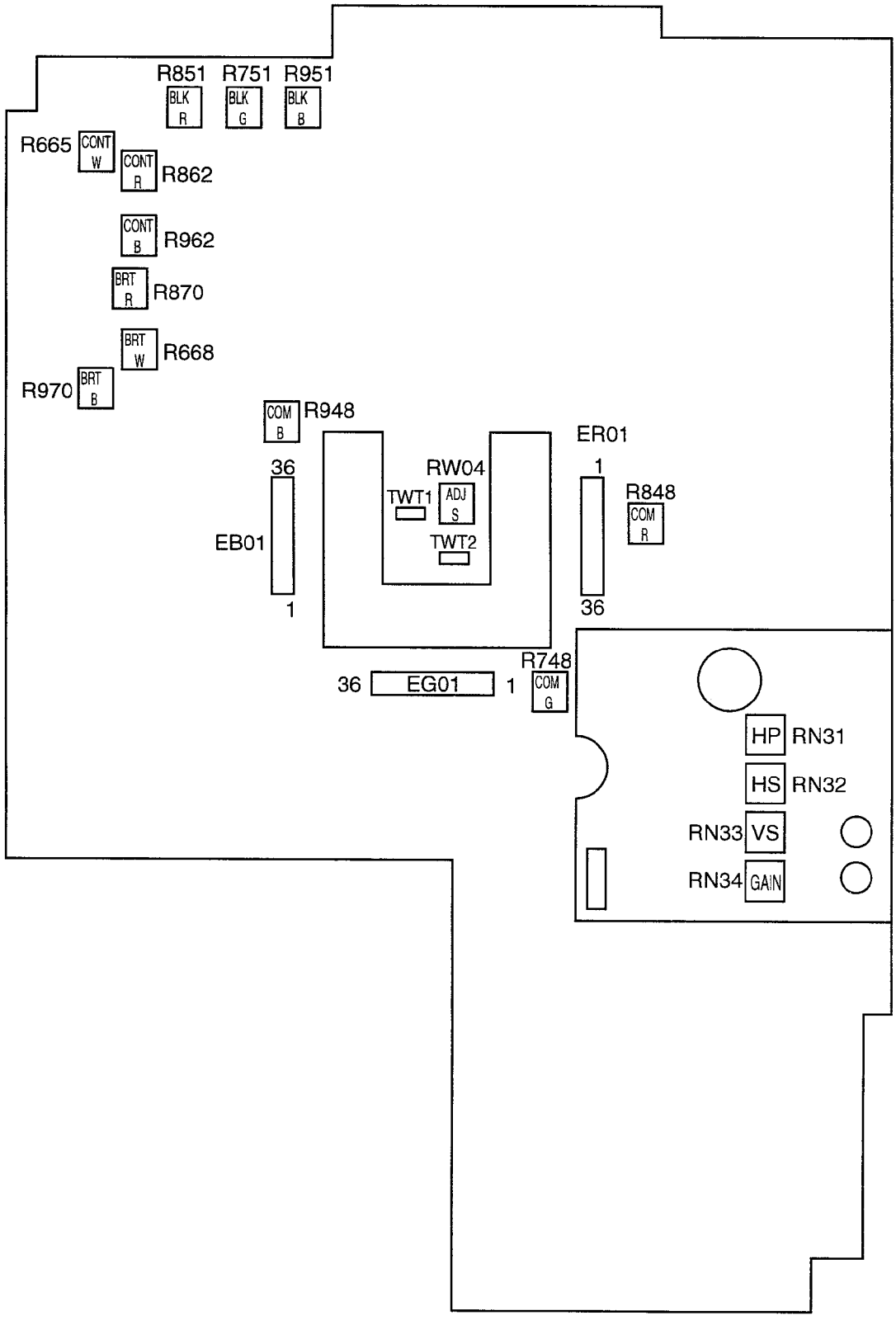
SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Liquid Crystal Projector

April 1999 Digital Media Systems Division

1. Adjustment

1 - 1 Position to be adjusted



1 - 2 White balance adjustment

Preparations for adjustment

1. Setting of condition

①Apply heat-running for 10 minutes or more before adjustment.

②Project 40 inches size image with zoom set to the widest.

③Press the RESET button of the remote control transmitter to set picture adjustment to NORMAL.

2. Adjustment common voltage (flicker) .

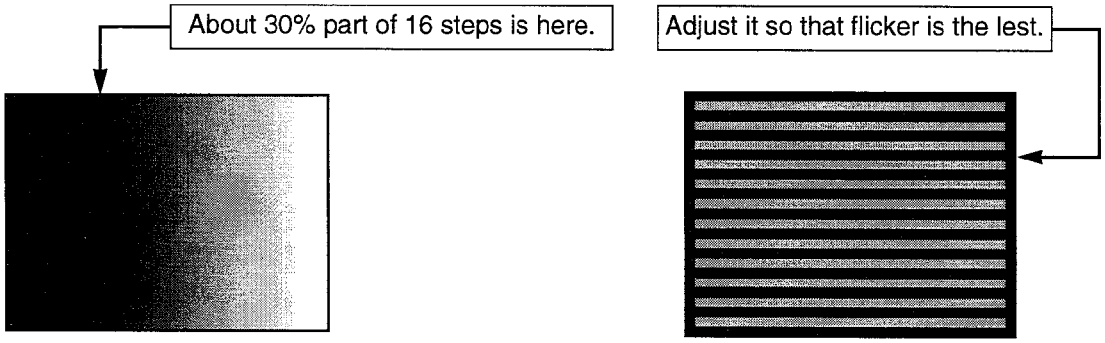
Refer to the attached drawing.

①Input 16 steps monochrome green with a timing signal of SVGA VESA(60).
Adjust R748 so that brightness at about 30% part of 16 steps is the darkest.

②Input 16 steps monochrome red with a timing signal of SVGA VESA(60).
Adjust R848 so that brightness at about 30% part of 16 steps is the darkest.

③Input 16 steps monochrome blue with a timing signal of SVGA VESA(60).
Adjust R948 so that brightness at about 30% part of 16 steps is the darkest.

④Input horizontal green line (gray/black) signal with a timing signal of SVGA VESA(60).
Adjust R748 so that flicker is the lest.



Adjustment Procedure

1. Adjustment of color correction circuit.

①Input gray at 0.35Vp-p with a timing signal of SVGA VESA(60).

②Set RN34(GAIN) to minimum.

③Check the color uniformity of image.

④Continue this adjustment when color uniformity is not good.

⑤Set RN34(GAIN) to maximum and RN31(HP), RN32(HS) and RN33(VP) to mechanical center.

⑥Adjust RN32(HS) so that color balance of left and right side is best,....visual check.
RN32 is control correction wave for Horizontal Saw.

⑦Adjust RN31(HP) so that color balance of center and side is best,....visual check.
RN31 is control correction wave for Horizontal Parabola.

⑧Adjust RN33(VS) so that color balance of top and bottom is best,....visual check.
RN33 is control correction wave for Vertical Saw.

2. Adjustment of white balance.

①Preset R751(G BLK) ,R851(R BLK) and R951(B BLK) to the mechanical center.

②Input 16 steps monochrome green at 0.7Vp-p with a timing signal of SVGA VESA(60).

③Adjust R665(W SUB CONTRAST) and R668(W SUB BRIGHT) so that brightness of 16 steps is best,....visual check.

④Input gray pattern at 0.21Vp-p with a timing signal of SVGA VESA(60).

⑤ Adjust R870(R SUB BRIGHT) and R970(B SUB BRIGHT) so that the chromaticity at the center of the picture is x=0.280±0.005,y=0.360±0.005 (middle-brightness white balance)

⑥Input gray pattern at 0.52Vp-p with a timing signal of SVGA VESA(60).

⑦Adjust R862(R SUB CONTRAST) and R962(B SUB CONTRAST) so that the chromaticity at the center of the picture is x=0.280±0.005,y=0.360±0.005 (hi-brightness white balance)

⑧Input gray pattern at 0.07Vp-p with a timing signal of SVGA VESA(60).

⑨Adjust R851(R BLK) and R951(B BLK) so that the chromaticity at the center of the picture is x=0.280±0.01,y=0.360±0.01 (low-brightness white balance)

⑩Repeat ④ to ⑨ and adjust middle, hi and low-brightness white balance.

note When majoring and adjustment using Minolta CL-100.

1 - 3 Panel phase adjustment

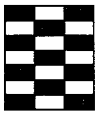
Adjustment procedure

①As following procedure, adjust it with each timing signal ; SVGA VESA(85), MAC16, SVGA VESA (75), SVGA VESA(56), VGA VESA(60) and XGA VESA(60).

②Input cross hatch monochrome green at 0.7Vp-p with a timing signal of SVGA VESA(60), and adjust H.PHASE of menu so that the best at vertical lines.

③Input character signal monochrome green at 0.35Vp-p.

(CHARACTER Format : 1 Code:83hex [ ]
Font:16*16 Cel:16*16)



④Adjust "PANEL PHASE" in "S/H" of adjustment-menu (*) so that the lest vertical stripe pattern.

Note:Never change "S/H PHASE" of adjustment-menu (*).

-> Fix "0", only XGA VESA(60) fix "1".

* how to set up adjustment-menu

1st Push MENU button, 2nd Push RESET button and keep 5sec. or more, 3rd Select S/H of head line.

1 - 4 Sensor adjustment

Preparations for adjustment

①Apply heat-running for 10 minutes or more before adjustment.

Adjustment procedure

Adjust RW04 to get following values.

0.018 ± 0.002 [V]

(Connect ⊕ side to TWT1 and ⊖ side to TWT2 by digital meter.)